```
     FILE 'REGISTRY' ENTERED AT 22:56:38 ON 19 MAR 2002
L9             13 S HYDROXY ETHYL STARCH
L10             2 S 9005-27-0 OR 93196-83-9

     FILE 'CAPLUS' ENTERED AT 23:04:58 ON 19 MAR 2002
               E INFUSION/CT
               E E44+ALL/CT

     FILE 'CAPLUS, WPIDS' ENTERED AT 23:05:41 ON 19 MAR 2002

     FILE 'REGISTRY' ENTERED AT 23:05:56 ON 19 MAR 2002
               SET SMARTSELECT ON
L11           SEL L10 1- CHEM :      81 TERMS
               SET SMARTSELECT OFF

     FILE 'CAPLUS, WPIDS' ENTERED AT 23:05:59 ON 19 MAR 2002
L12           7042 S L11/BI
L13            236 S L12 (L) (SODIUM CHLORIDE OR NACL OR SALINE#)
L14            207 S (HYDROXYETHYLSTARCH? OR HYDROXYETHYL STARCH?) (L) (SODIUM CHL
L15            258 S L13 OR L14
L16             93 S L15 AND (INFUSION OR TRANSFUSION OR REPLAC? OR DEHYDRAT? OR (
L17            149 S L15 AND SALINE
L18            174 S L16 OR L17
L19            168 DUP REM L18 (6 DUPLICATES REMOVED)
L20             33 S L19 AND (BICARBONATE# OR LACTATE# OR ELECTROLYTE#)
L21             16 S L20 AND (DEXTRAN OR GELAT?)
L22             17 S L20 NOT L21
L23            135 S L19 NOT L20

     FILE 'STNGUIDE' ENTERED AT 23:18:54 ON 19 MAR 2002

     FILE 'CAPLUS, WPIDS' ENTERED AT 23:29:48 ON 19 MAR 2002

=> d que l14; d que l16
L14            207 SEA (HYDROXYETHYLSTARCH? OR HYDROXYETHYL STARCH?) (L) (SODIUM
                   CHLORIDE OR NACL OR SALINE#)



L10              2 SEA FILE=REGISTRY 9005-27-0 OR 93196-83-9
L11                SEL  L10 1- CHEM :      81 TERMS
L12           7042 SEA L11/BI
L13            236 SEA L12 (L) (SODIUM CHLORIDE OR NACL OR SALINE#)
L14            207 SEA (HYDROXYETHYLSTARCH? OR HYDROXYETHYL STARCH?) (L) (SODIUM
                   CHLORIDE OR NACL OR SALINE#)
L15            258 SEA L13 OR L14
L16             93 SEA L15 AND (INFUSION OR TRANSFUSION OR REPLAC? OR DEHYDRAT?
                   OR (FLUID (3A) (LOSS OR LOSE? OR LOSING)) OR IV OR REHYDRAT?)
```

WO 99/59602 = Counterpart WO case

Contains most hit terms

no Dextran/gelat?

Remainder, does not have bicarbonate, Lactate, or electrolyte.

Too many hits.

Only particularly relev. hits printed for L23.

L21 ANSWER 1 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 2001:248377 CAPLUS
DN 135:190252
TI Prediction of volatile anesthetic solubility in blood and priming fluids for extracorporeal circulation
AU Yu, R. -G.; Zhou, J. -X.; Liu, J.
CS Department of Anesthesiology, Fuwai Hospital and Cardiovascular Institute, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, 100037, Peop. Rep. China
SO British Journal of Anaesthesia (2001), 86(3), 338-344
CODEN: BJANAD; ISSN: 0007-0912
PB Oxford University Press
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB This study investigated the soly. of three volatile anesthetics, desflurane, isoflurane and halothane, during cardiopulmonary bypass (CPB) by detg.: (1) their soly. in fresh whole blood and eight CPB priming fluids at 37.degree.; (2) the effect of temp. on the soly. of these anesthetics in **lactated** Ringer's soln., gelofusin, banked blood and plasma; (3) their soly. in different mixts. of these four priming fluids at different temps.; and (4) their estd. and actual soly. in blood during hypothermic CPB. Soly. was calcd. by using vol. fraction partition coeff. and the estd. and measured solubilities were compared. For the three anesthetics tested, solubilities wee in the order: fresh whole blood .apprxeq. plasma > banked blood > normal **saline** .apprxeq. **lactated** Ringer's .apprxeq. gelofusin .apprxeq. Haemaccel .apprxeq. **hydroxyethyl starch** > mannitol. The solubilities of the anesthetics in all these priming fluids increased logarithmically as the temp. was lowered. The vol.-fraction ests. of the partition coeffs. were within approx. .+-.20% of the measured values for all values of soly. The corresponding ests. of soly. for CPB blood samples were between -36% and +24% of the measured values. Thus, during normothermic CPB, the soly. of volatile anesthetics in blood would be unchanged when using plasma, slightly reduced when using banked blood and markedly reduced when using crystalloids and colloids.
IT **Gelatins**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(hydrolyzates, polymers with urea; prediction of volatile anesthetic soly. in blood and priming fluids for extracorporeal circulation contg.)

L21 ANSWER 2 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 2000:765019 CAPLUS
DN 134:227192
TI Protective effects of plasma **replacement** fluids on erythrocytes exposed to mechanical stress
AU Sumpelmann, R.; Schurholz, T.; Marx, G.; Zander, R.
CS Zentrum Anasthesiologie, Medizinische Hochschule Hannover, Hannover, 30625, Germany
SO Anaesthesia (2000), 55(10), 976-979
CODEN: ANASAB; ISSN: 0003-2409
PB Blackwell Science Ltd.
DT Journal
LA English
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI Protective effects of plasma **replacement** fluids on erythrocytes exposed to mechanical stress
AB Hb release from 40 suspensions of packed red blood cells in modified fluid **gelatin**, 4% albumin soln., 6% **hydroxyethyl**

starch and normal **saline** was investigated in vitro during circulation with a roller pump from a heart-lung machine for 120 min at a flow rate of 2.5 l.min-1 at room temp. The lowest Hb release was obtained with erythrocytes in modified fluid **gelatin**, whereas free Hb concns. became progressively higher with albumin, **hydroxyethyl starch** and normal **saline** [median free Hb (interquartile range) after 120 min circulation: **gelatin** 493 (360-601) mg.l-1, albumin 692 (590-1111) mg.l-1, **hydroxyethyl starch** 1121 (692-1518) mg.l-1, normal **saline** 1178 (881-1757) mg.l-1, $p < 0.001$]. Modified fluid **gelatin** appears to have potent erythrocyte protective properties similar to those of albumin. This effect could decrease mech. hemolysis during extracorporeal circulation or cell saver autotransfusion if modified fluid **gelatin** is used as part of a priming soln. or as an additive in wash solns.

ST blood substitute erythrocyte Hb mech stress; **gelatin** blood substitute erythrocyte mech stress; hydroxyethyl starch blood substitute erythrocyte mech stress; albumin blood substitute erythrocyte mech stress

IT Hemoglobins
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(Hb release from erythrocytes exposed to mech. stress protected by blood plasma **replacement** fluids)

IT Blood substitutes
Erythrocyte
Stress, mechanical
(protective effects of blood plasma **replacement** fluids on erythrocytes exposed to mech. stress)

IT **Gelatins**, biological studies
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(protective effects of modified fluid **gelatin** blood substitute on erythrocytes exposed to mech. stress)

IT 9001-60-9, **Lactate** dehydrogenase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(LDH from erythrocytes exposed to mech. stress protected by blood plasma **replacement** fluids)

L21 ANSWER 3 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1999:755989 CAPLUS
DN 132:44336
TI Hydroxyethylstarch: clinical uses
AU Esper, Raul Carrillo; Hernandez, Jose Manuel Ramirez; Alarcon, Carlos Eduardo Aleman; Hernandez, Jose Juan Gargallo; Martinez, Cuitlahuac Alvarado; Monroy, Fernando Nunez
CS Servicio de Terapia Intensiva, Hospital Central de Petroleos Mexicanos, Mex.
SO Rev. Fac. Med. U.N.A.M. (1998), 41(6), 227-230
CODEN: UMRMAJ; ISSN: 0026-1742
PB Universidad Nacional Autonoma de Mexico, Facultad de Medicina
DT Journal; General Review
LA Spanish
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A review with 39 refs. Circulatory shock is characterized by inadequate tissue perfusion which leads to cellular dysfunction, anaerobic metab., lactic acidosis, and tissue death. The patient survival depends on improving oxygen supply and other cardiorespiratory deficits through **replacement** of an adequate circulating blood/fluid vol. This can be achieved with crystalloid solns. (**saline, lactated** Ringer soln.), colloids (human serum albumin), or synthetic products (

dextran, gelatin, hydroxylethyl starch). Colloid solns. have the most important use in managing crit. conditions, among them starch derivs., although they are not widely known by practicing physicians. The pharmacol. aspects of **hydroxyethyl starch** in blood substitute prepns. are discussed.

L21 ANSWER 4 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1998:161124 CAPLUS
DN 128:235143
TI Hypertonic arginine compositions and methods
IN Dewitt, Douglas; Kramer, George C.; Poli De Figueiredo, Luiz F.; Mathru, Mali; Prough, Donald S.
PA Board of Regents, University of Texas System, USA; Dewitt, Douglas; Kramer, George C.; Poli De Figueiredo, Luiz F.; Mathru, Mali; Prough, Donald S.
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9808500	A1	19980305	WO 1997-US16203	19970826
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9743448	A1	19980319	AU 1997-43448	19970826
PRAI	US 1996-25793P	P	19960826		
	WO 1997-US16203	W	19970826		

AB The present invention concerns hypertonic formulations that are useful to treat hemorrhage and trauma, and particularly trauma of the central nervous system, brain and spinal cord and circulatory shock. Also disclosed is a method of effectively treating or preventing the pulmonary or systemic hypertension that may occur with Hb infusions. Such hypertonic formulations include L-arginine in various hypertonic aq. formulations that may also include an oxygen carrier. A hypertonic (2400 mOsm) mixt. of **NaCl** (6.81 g/100 mL) and L-arginine (5 g/100 mL) alone or combined with various hyperoncotic colloids such as **dextran, hespan,** and Hbs, may be delivered at 6 mL/kg **infusion** to treat trauma and hemorrhage.
ST hypertonic arginine **infusion** hemorrhage trauma treatment
IT 9004-54-0, **Dextran,** biological studies 9005-27-0, Hetastarch
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as hyperoncotic colloid; hypertonic compns. contg. arginine and crystalloids for treatment of cerebral ischemia)
IT 72-17-3, Sodium **lactate** 74-79-3, L-Arginine, biological studies 127-09-3, Sodium acetate 144-55-8, Sodium **bicarbonate**, biological studies 7647-14-5, Sodium chloride, biological studies
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hypertonic compns. contg. arginine and crystalloids for treatment of cerebral ischemia)

L21 ANSWER 5 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1995:756667 CAPLUS
DN 123:160431
TI Attenuation of microvascular permeability dysfunction in postischemic

striated muscle by hydroxyethyl starch
AU Oz, Mehmet C.; FitzPatrick, Michael F.; Zikria, Bashir A.; Pinsky, David J.; Duran, Walter N.
CS New Jersey Medical School, University of Medicine and Dentistry of New Jersey, Newark, NJ, 07103, USA
SO Microvasc. Res. (1995), Volume Date 1995, 50(1), 71-9
CODEN: MIVRA6; ISSN: 0026-2862
DT Journal
LA English
AB The authors examd. the effect of **hydroxyethyl starch** macromol. (HES-Pz) pretreatment on microvascular transport of macromols. in ischemia-reperfusion injury. The rat cremaster was splayed, placed in a Lucite intravital chamber, and suffused with **bicarbonate** buffer. The clearance of fluorescein isothiocyanate **dextran** 150 (FITC-Dx 150) was measured as an index of microvascular transport. After detn. of baseline data, the muscle was made ischemic for 4 h by clamping the vascular pedicle and subsequently reperfused for 2 h. In control animals not subjected to ischemia, clearance of FITC-Dx 150 remained const. throughout the exptl. 7-h period. In **saline**-treated animals, ischemia-reperfusion increased the clearance of FITC-Dx 150 from 1.8 to 9.7 .mu.L/15 min/g by the end of the reperfusion period. Pretreatment with HES-Pz, at a concn. of 6% in a vol. of **saline** equiv. to 10% of blood vol., significantly attenuated the microvascular dysfunction produced by ischemia-reperfusion. The mean ratio of postischemic to baseline clearance of FITC-Dx 150 was 1.28 for samples taken from the 30th to the 120th min of reperfusion at 15 intervals. The data support a beneficial effect of HES-Pz on microvascular transport of macromols. The role of leukocyte-endothelium adhesion as an underlying mechanism explaining these results was studied by evaluating the effect of HES-Pz on the ability of thrombin-stimulated human umbilical vein endothelial cells (HUVECs) to bind neutrophils. These expts. demonstrated that thrombin-treated HUVECS bound 229% more indium-111-labeled neutrophils than did similarly stimulated HUVECS treated with HES-Pz. The authors propose that HES-Pz may act by sealing and restoring microvascular integrity and by blunting the increased adhesiveness of stimulated endothelial cells for neutrophils.

L21 ANSWER 6 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1994:426818 CAPLUS
DN 121:26818
TI Hypertonic **saline dextran** prime reduces increased intracranial pressure during cardiopulmonary bypass in pigs
AU McDaniel, L. B.; Nguyen, T.; Zwischenberger, J. B.; Vertrees, R.; Uchida, T.; Kramer, G. C.
CS Dep. Anesthesiol. Surg. and Biostat., Univ. Tex. Med. Branch, Galveston, TX, 77555-0591, USA
SO Anesth. Analg. (N. Y.) (1994), 78(3), 435-41
CODEN: AACRAT; ISSN: 0003-2999
DT Journal
LA English
TI Hypertonic **saline dextran** prime reduces increased intracranial pressure during cardiopulmonary bypass in pigs
AB Children and adults who develop neurol. deficits after cardiac surgery may experience cerebral ischemia during cardiopulmonary bypass. Increased intracranial pressure (ICP) may contribute to cerebral ischemia during bypass. Hypertonic **saline dextran** (HSD), a hyperosmotic, hyperoncotic resuscitation soln., decreases ICP in trauma resuscitation. The authors hypothesized that HSD would decrease ICP, reduce brain water, and reduce intravascular fluid requirements during bypass. Twelve swine were divided into two bypass groups: Group 1 (ISO = isotonic) received as prime 1 L of **lactated** Ringer's soln. and 500 mL of 6% **hydroxyethyl starch**. Group 2 (HSD = hypertonic **saline/dextran**) received as prime 1 L of

lactated Ringer's soln., 500 mL of 6% **hydroxyethyl starch**, and 1 mL/kg of 24% hypertonic **saline**/25% **dextran**. Normothermic bypass was instituted at 100 mL/kg/min. ICP increased significantly during bypass with ISO prime but not with HSD. Brain water in the cerebrum did not differ between groups but was reduced in the cerebellum to 75.9%. The authors conclude that HSD prevented any significant increase in ICP during normothermic bypass, and substantially improved fluid balance during bypass. In cardiac surgery, patients in whom maintaining decreased ICP and reducing isotonic fluid administration is important, HSD may be a useful addn. to the bypass prime soln.

ST hypertonic **saline dextran** intracranial pressure surgery; cardiopulmonary bypass intracranial pressure hypertonic **dextran**

IT Brain
(intracranial pressure of, hypertonic **saline dextran** decrease of, in cardiopulmonary bypass surgery)

IT Circulation
(extracorporeal, cardiopulmonary bypass, intracranial pressure decrease by hypertonic **saline dextran** in)

IT Physiological **saline** solutions
(hypertonic, **dextran**-contg., intracranial pressure decrease by, in cardiopulmonary bypass surgery)

IT 9004-54-0, **Dextran**, biological studies
RL: BIOL (Biological study)
(hypertonic **saline** contg., intracranial pressure decrease by, in cardiopulmonary bypass surgery)

IT 7647-14-5, Sodium chloride, biological studies
RL: BIOL (Biological study)
(hypertonic solns., **dextran**-contg., intracranial pressure decrease by, in cardiopulmonary bypass surgery)

L21 ANSWER 7 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1994:307 CAPLUS
DN 120:307
TI Comparative effects of crystalloid and small volume hypertonic hyperoncotic fluid resuscitation on hepatic microcirculation after hemorrhagic shock
AU Bauer, Michael; Marzi, Ingo; Ziegenfuss, Thomas; Seeck, Gottfried; Buehren, Volker; Larsen, Reinhard
CS Clin. Anesthesiol. Crit. Care Med., Univ. Saarland, Homburg/Saar, D-6650, Germany
SO Circ. Shock (1993), 40(3), 187-93
CODEN: CRSHAG; ISSN: 0092-6213
DT Journal
LA English
AB Hepatic microcirculation, leukocyte endothelial interactin, and sinusoidal widths were studied by means of intravital microscopy in a non-heparinized fixed pressure hemorrhagic shock model in the rat. Asanguineous resuscitation was performed either with "adequate" amts. of **lactated** Ringer's soln. (3-fold shed vol./30 min) or 4 mL/kg/3 min 7.2% **saline**/10% **Dextran** 60 (HSDex) or 4 mL/kg/3 min 7.2% **saline**/10% **hydroxyethylstarch** 200/0.62 (HSHes). Hemorrhagic shock and resuscitation was paralleled by lumenal narrowing of sinusoids that remained largely uninfluenced by the type of fluid used for resuscitation. Whereas HSHes and LR-therapy resulted in comparably increased leukocyte adhesion to the sinusoidal wall, the **dextran** -contg. soln. led to an attenuation of leukocyte-endothelial interaction, suggesting involvement of **dextran**-binding adhesion mols., e.g., selectins.

IT Leukocyte
(adhesion of, to liver sinusoid wall, in **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic soln.-treated hemorrhagic shock)

IT Hypertonic solutions
(hyperoncotic, **dextran**- vs. hydroxyethylstarch-contg., hemorrhagic shock treatment with, hepatic microcirculation response to)
IT Liver
(microcirculation of, in hemorrhagic shock, **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns. effect on)
IT Hemorrhage
(shock from, treatment of, with **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns., hepatic microcirculation response to)
IT Resuscitation
(with **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns., after hemorrhagic shock, hepatic microcirculation response to)
IT Adhesion
(bio-, of leukocyte, to liver sinusoidal wall, in **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic soln.-treated hemorrhagic shock)
IT Shock
(hemorrhagic, treatment of, with **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns., hepatic microcirculation response to)
IT Blood vessel
(micro-, of liver, in hemorrhagic shock, **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns. effect on)
IT Glycoproteins, specific or class
RL: BIOL (Biological study)
(selectins, leukocyte adhesion to liver sinusoid wall in hemorrhagic shock treatment with **dextran**- vs. hydroxyethylstarch-contg. hypertonic hyperoncotic solns. in relation to)
IT 9004-54-0, **Dextran** 60, biological studies 9005-27-0
RL: BIOL (Biological study)
(hypertonic hyperoncotic solns. contg., hemorrhagic shock treatment with, hepatic microcirculation in response to)

L21 ANSWER 8 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1993:420153 CAPLUS
DN 119:20153
TI The effect of the type of colloid on the efficacy of hypertonic **saline** colloid mixtures in hemorrhagic shock: **Dextran** versus **hydroxyethyl starch**
AU Strecker, Ulrich; Dick, Wolfgang; Madjidi, Abbas; Ant, Marita
CS Dep. Anesth., Johannes Gutenberg-Univ., Mainz, D-W 6500, Germany
SO Resuscitation (1993), 25(1), 41-57
CODEN: RSUSBS; ISSN: 0300-9572
DT Journal
LA English
TI The effect of the type of colloid on the efficacy of hypertonic **saline** colloid mixtures in hemorrhagic shock: **Dextran** versus **hydroxyethyl starch**
AB Colloids increase and prolong the efficacy of hypertonic **saline** solns. in hemorrhagic shock. The present study compared the efficacy of **dextran** 60 and **hydroxyethyl starch** (HES) 200,000/0.5 at iso-oncotic concns. of 6.5 or 6% in a 7.5% NaCI soln. Thirty-two rabbits were bled to maintain a mean arterial pressure at 35 mmHg. Twenty-five percent of the shed blood vol. was **replaced** after 40 min by bolus **infusion** either with hypertonic **dextran** (HS-DEX) or with hypertonic **hydroxyethyl starch** (HS-HES). The animals were then obsd. for a 120-min period. In both groups immediate and complete restoration of cardiovascular function was achieved in up to 30 min and adequate restoration maintained for 60 min after **infusion**. During the subsequent 60 min signs of insufficient oxygen supply indicated the

recurrence of near shock levels. Greater stability of hemodynamic efficacy was obsd. when **dextran** was added to hypertonic **saline**. The decrease in mean arterial pressure was lower in the **dextran** group ($P < 0.05$). The subsequent increase in avDO2 (bv. cava sup.) was approx. 50% lower with **dextran** (1 mL/dL compared to 1.8 mL/dL); ($P < 0.05$). These differences occurred primarily within the initial 15 min although the differences in mean arterial pressure were recorded only after 30-60 min. A 50% redn. in **lactate** levels (1.1 compared to 2.0 mmol; $P < 0.05$) in immediate response to reinfusion indicates an increased **lactate** absorption and thus improved perfusion of poorly perfused tissue in the **dextran** group. A further, important difference may be due to the different effects on the microcirculation. As evidenced by a decline in the end-expiratory arterial CO2 gradient, **dextran** effected a significant ($P < 0.01$) improvement in decreased pulmonary CO2 emission during shock. This indicates a greater rise of blood flow in poorly perfused, ventilated pulmonary areas. In summary, in this model **dextran** appeared to be the superior colloid compared to HES, particularly during the first hour after initiation of treatment, although direct proof of an improved long term outcome has not been demonstrated.

ST hemorrhage shock colloidal **dextran** hydroxyethyl starch

IT Hemorrhage
(shock from, colloidal **dextran** vs. hydroxyethyl starch effect on)

IT 9005-27-0, Hydroxyethyl starch
RL: BIOL (Biological study)
(colloidal, hemorrhagic shock treatment with, **dextran** in comparison with)

IT 9004-54-0, **Dextran**, biological studies
RL: BIOL (Biological study)
(colloidal, hemorrhagic shock treatment with, hydroxyethyl starch in comparison with)

L21 ANSWER 9 OF 16 CAPLUS COPYRIGHT 2002 ACS

AN 1991:520064 CAPLUS

DN 115:120064

TI Galactose-based enteral and pareneral feeding solutions

IN Reutter, Werner; Roser, Martin

PA Fed. Rep. Ger.

SO Ger. Offen., 10 pp.
CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 3935906	A1	19910502	DE 1989-3935906	19891027
DE 3935906	C2	19930617		

AB Solns. for enteral and parenteral feeding comprise monosaccharides, essential amino acids, **electrolytes** and proteins. Of the monosaccharides, .gtoreq.5% consist of D-galactose, L-glucose, D-mannose, D-glucosamine, N-acetylgalactosamine, N-acetylmannosamine, D-lactose and/or D-lactose, with D-galactose .gtoreq.50% of the above monosaccharide total. Since D-galactose restores the function of the metab. receptors and transport systems, the solns. are esp. useful for patients in coma or stress. An **infusion** soln. comprised D-galactose 25, D-mannose 25, arginine 5, phenylalanine 7, valine 5, leucine 7, isoleucine 6, lysine 6, methionine 5, **dextran** 25, **hydroxyethyl starch** 25, KCl 4, CaCL2 3, MgCl2 2 g/L and **NaCl** q.s.

IT **Electrolytes**
Albumins, biological studies
Globulins, biological studies
Monosaccharides

RL: BIOL (Biological study)
(feeding solns. contg., enteral and parenteral)

L21 ANSWER 10 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1980:591943 CAPLUS
DN 93:191943
TI Study on **electrolyte** balanced plasma substitute
AU Wu, Kuo-Kuang; Hu, Wei-Yu; Chin, Li; Chia, Hung-Yeh; Sun, Ta-Chin; Hsu, Shen-Jen; Wu, Chu-Hsin
CS Shanghai Cent. Blood Bank, Shanghai, Peop. R. China
SO Chung-hua I Hsueh Tsa Chih (Peking) (1980), 60(2), 65-7
CODEN: CHHTAT; ISSN: 0376-2491
DT Journal
LA Chinese
TI Study on **electrolyte** balanced plasma substitute
AB The contents of Na+, K+, Cl-, Ca+, Mg++, HCO3-, and colloids of " **electrolyte** balanced plasma substitute" (EBPS) were compared with those of the usual plasma substitutes, e.g., **hydroxyethyl starch** ether, **dextran**, lactic acid-**NaCl** solns., 5% glucose in **saline**. Clin. tests showed that the patients' blood levels of Ht, Hb, and the **electrolytes**, blood pressures, blood coagulation times, and pulse rates for EBPS were comparable to those for the other substitutes. However, the smaller .DELTA.BB (buffered base), .DELTA.BE (excess base), and .DELTA.SB (std. HCO3-) values for EBPS makes it a safer plasma substitute.
ST **electrolyte** balanced plasma substitute
IT Blood substitutes
(**electrolyte** balanced plasma substitute)
IT **Electrolytes**
(in **electrolyte** balanced plasma substitute)

L21 ANSWER 11 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1975:68114 CAPLUS
DN 82:68114
TI Rheological effects of plasma expanders upon red blood cells
AU Goto, Yukio; Aochi, Osamu
CS Med. Sch., Nagoya City Univ., Nagoya, Japan
SO Nagoya Med. J. (1973), 18(4), 253-75
CODEN: NMJOAA
DT Journal
LA English
AB Suspension of erythrocytes in blood plasma expander solns. such as **dextran** [9004-54-0] altered erythrocyte shape and size and induced aggregation while **hespander** (HES) [**9005-27-0**] induced rouleaux formation. **Dextran**, glucose [50-99-7] (5%) Ringer's **lactate**, and physiol. **saline** (**NaCl** [7647-14-5] 0.9%) caused a higher rate of hemolysis than did HES and modified **gelatin**. The plasma expanders also had various effects on the elec. potential of erythrocyte membranes, suspension stability, and erythrocyte sedimentation rate.
ST blood plasma expander erythrocyte; rheol erythrocyte plasma expander; **dextran** erythrocyte rheol
IT **Gelatins**, biological studies
Ringer's solution
RL: BIOL (Biological study)
(as blood plasma expander, erythrocyte rheol. response to)

L21 ANSWER 12 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1967:27054 CAPLUS
DN 66:27054
TI Changes of pH of blood diluted with plasma and plasma substitutes in vitro
AU Takaori, Masuhiko
CS Sch. of Med., Univ. of Pittsburgh, Pittsburgh, Pa., USA

SO Transfusion (Philadelphia) (1966), 6(6), 597-9
CODEN: TRANAT
DT Journal
LA English
AB In vitro diln. of dog arterial blood (1:2, 1:4, 1:8, and 1:16 dilns.) with citrate-dextrose-preserved plasma caused a marked and progressive decrease in pH to 6.97 During diln. with colloid plasma substitutes (clin. **dextran**, low-mol.-wt. **dextran**, or **hydroxyethyl starch**) or crystalloid solns. (**lactated** Ringer's soln. or isotonic **NaCl**) blood pH remained essentially unchanged except for a decrease to 7.35 with dextrans at a 1:16 diln.
ST PH BLOOD DILN; BLOOD DILN PH; **SALINE** BLOOD DILN; PLASMA BLOOD DILN; DEXTRANS BLOOD DILN

L21 ANSWER 13 OF 16 CAPLUS COPYRIGHT 2002 ACS
AN 1966:510977 CAPLUS
DN 65:110977
OREF 65:20701b-d
TI Bioassay of treatment of hemorrhagic shock. Roles of blood, Ringer's solution with **lactate**, and macromolecules (**dextran** and hydroxyethyl starch) in the treatment of hemorrhagic shock in the anesthetized dog
AU Dillon, John; Lynch, Lawrence J., Jr.; Myers, Richard; Butcher, Harvey E., Jr.; Moyer, Carl A.
CS Washington Univ. School of Med., St. Louis, MO
SO Arch. Surg. (1966), 93(4), 537-55
DT Journal
LA English
TI Bioassay of treatment of hemorrhagic shock. Roles of blood, Ringer's solution with **lactate**, and macromolecules (**dextran** and hydroxyethyl starch) in the treatment of hemorrhagic shock in the anesthetized dog
AB Dogs were lightly anesthetized with Na pentobarbital (30 mg./kg.) (pH 8.5) at const. rates, using an elec. pump, before inducing the Wigger's type of shock. Practically all of the blood was **replaced** with this soln., using 2 to 3 times the vol. of blood removed. Many animals recovered, even though the **saline replacement** had produced an acute anemia, a hypoproteinemia of 50%, and a blood vol. was difficult to restore. This work consisted of a long series of expts. and showed that the **transfusion** of blood is an indispensible part of the treatment of hemorrhagic shock. The **replacement** of even half of the blood which had been removed to produce the shock significantly increased the effectiveness of treatment with Ringer's soln. with **lactate**. The death rate from shock in animals thus treated was 10 of 20, but it was only 1 of 8 when the Ringer's soln. was made up with half blood. The value of adding **dextran** to a **saline** soln. for shock treatment was nil, as is also the addn. of **hydroxyethyl starch**. The H+ concn. is important, pH 8.2 to 8.5 is best. This method of treatment of shock was better than 10 others which were compared with it. Animals used in these expts. were kept under the various **replacement** fluids for 150 min. There is evidence that a functional deficit of extracellular ions and water develops during hemorrhagic hypotension.

L21 ANSWER 14 OF 16 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 2001-246897 [26] WPIDS
CR 2001-246898 [23]
DNN N2001-175866 DNC C2001-074395
TI Medium for preserving eukaryotic cells, useful for long-term frozen storage of chondrocytes for treating cartilage defects, contains human serum albumin and polysaccharides.
DC B04 D16 D22 P34
IN CRESPO, A; KLATZMANN, D; SALZMANN, J; CRESPO, A L; PASSUTI, N; SALZMANN, J

L
PA (UYPA-N) UNIV CURIE PARIS VI P & M
CYC 95
PI EP 1085082 A1 20010321 (200126)* FR 22p
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI
FR 2798671 A1 20010323 (200126)
WO 2001019964 A1 20010322 (200126) FR
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
FR 2801317 A1 20010525 (200133)
AU 2000074291 A 20010417 (200140)
ADT EP 1085082 A1 EP 2000-402537 20000914; FR 2798671 A1 Div ex FR 1999-11564 19990916, FR 1999-11564 19990916; WO 2001019964 A1 WO 2000-FR2535 20000914; FR 2801317 A1 Div ex FR 1999-11564 19990916, FR 2000-14771 20001116; AU 2000074291 A AU 2000-74291 20000914
FDT AU 2000074291 A Based on WO 200119964
PRAI FR 1999-11564 19990916; FR 2000-14771 20001116
AB EP 1085082 A UPAB: 20010719
NOVELTY - A medium (A) for preservation of eukaryotic cells, comprising human serum albumin, a polysaccharide (I) and optionally a **saline** solution, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) a composition for freezing chondrocytes (CC) that lacks dimethylsulfoxide (DMSO) and/or glycerol and is compatible with therapeutic use;

(b) a composition containing CC (preferably human), **saline** solution, human albumin and a **gelatin** derivative;

(c) a composition containing CC (preferably human), human albumin, (I) and optionally a **saline** solution; and

(d) a method for producing a CC composition from a biological sample.

USE - (A) Is preferably used for frozen preservation of:

(i) antigen-presenting cells, especially monocytes, macrophages, dendritic cells and their derivatives; and

(ii) chondrocytes (CC).

It is also generally suitable for any eukaryotic cell. Particularly CC compositions, formulated in (A), are used for repair of cartilage defects (e.g. post-traumatic defects or dissecting osteochondritis of the knee, particularly for articular cartilage) by implantation, production of artificial cartilage patches or seeding matrices. The compositions may also be used to study development and biology of CC, for the preparation of nucleic acid banks, for the preparation of transformed CC and for the purification of proteins.

ADVANTAGE - (A) provides long term frozen preservation of chondrocytes without loss of viability or functionality, and is compatible with therapeutic use, i.e. it eliminates the need for washing or centrifugation. It makes possible the creation of allogeneic chondrocyte (CC) banks so that the CC do not have to be prepared separately for each individual patient.

Dwg.0/0

TECH UPTX: 20010515

TECHNOLOGY FOCUS - BIOLOGY - Preferred Materials: The albumin is a purified extraction product (e.g. from commercial plasma extenders) and (I) is a sulfated polysaccharide of mean molecular weight 5-500, especially 80-250, kD, particularly **dextran** (40-60 kD), starch and **hydroxyethylstarch** (240 kD). A preferred **saline** solution contains (per l) 2-9 g **sodium chloride**, 0.05-0.2 g magnesium chloride, 0.05-0.5 g potassium chloride and 0.5-5 g

lactate. **Gelatin** derivatives have molecular weight 15-40 kD and are produced by hydrolysis of collagen then reaction with succinic anhydride.
Preferred Composition: The CC are present at a density of at least 5 x 106, particularly at least 107, per ml, and a preferred storage medium is 5-45% of a 20% human albumin solution plus 55-95% (I), optionally in **saline**.
Preferred preparation: To produce a CC composition, a sample (e.g. fragment of cartilage or marrow) is divided into small pieces, treated with an enzyme to dissociate CC, then these are grown as a monolayer. The cells are detached, e.g. by treatment with trypsin but particularly with a polyoside derivative, especially heparin of about 20 kD, used at 100-1000 units/ml. The detached cells are then frozen in a preservation medium. The initial treatment is particularly with a recombinant collagenase and the culture/detachment operation may be repeated to expand the number of CC. Dissociation is preferably carried out at 37degreesC, using 0.1-1 mg/ml enzyme, typically for 15 hours, and may be done in nutrient medium. The cells are then seeded at 5000-1000/cm2 and grown to confluence, e.g. over about 3 weeks.

L21 ANSWER 15 OF 16 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 2000-062374 [05] WPIDS
DNC C2000-017286
TI Pharmaceutical composition for emergency treatment, particularly useful in patients with wound or shock e.g. due to blood loss.
DC A96 B05
IN ZHAO, C
PA (ZHAO-I) ZHAO C
CYC 85
PI WO 9959602 A1 19991125 (200005)* ZH 15p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW
W: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW
CN 1235833 A 19991124 (200014)
AU 9935147 A 19991206 (200019)
EP 1078636 A1 20010228 (200113) EN
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
KR 2001043585 A 20010525 (200168)
ADT WO 9959602 A1 WO 1999-CN55 19990416; CN 1235833 A CN 1998-108902 19980515; AU 9935147 A AU 1999-35147 19990416; EP 1078636 A1 EP 1999-916742 19990416, WO 1999-CN55 19990416; KR 2001043585 A KR 2000-712724 20001114
FDT AU 9935147 A Based on WO 9959602; EP 1078636 A1 Based on WO 9959602
PRAI CN 1998-108902 19980515
AB WO 9959602 A UPAB: 20000128
NOVELTY - Pharmaceutical composition for emergency treatment comprises e.g. **sodium chloride**, calcium gluconate, **hydroxyethylstarch**, glucosan and injection solution.
DETAILED DESCRIPTION - Pharmaceutical composition comprises:
(A) 1.5-6.9 w/v% of 1 or more selected from **sodium chloride**, potassium chloride, magnesium sulfate, calcium chloride, calcium gluconate, calcium **lactate**, sodium acetate and trihydroxymethylaminomethane;
(B) 3-18 w/v% of at least 1 of **hydroxyethylstarch**, glucosan, carboxymethylstarch, polyvinylpyrrolidone, **gelatin** derivatives, dextrin, glucose, fructose, lactose, glycerin, xylose, sodium alginate, N-2-hydroxypropylacrylamide, ethylene oxide-polyethylene glycol, pectin, mannitol and pentahydroxyethylstarch; and
(C) the balance of typical injection solution,
provided that the amount of **sodium chloride** is not less than 1.5 w/v% and sodium ion concentration not more than 6.9 w/v%

equivalent of that of **sodium chloride**.

An INDEPENDENT CLAIM is also included for a method of preparing the drug composition by dissolving 3-18 g of one or more of **hydroxyethylstarch**, glucosan, hydroxymethylstarch, polyvinylpyrrolidone, **gelatin** derivative(s), dextrin, glucose, fructose, lactose, glycerin, xylose, sodium alginate, N-2-hydroxypropylacrylamide, ethylene oxide-polyethylene glycol, pectin, mannitol and pentahydroxyethylstarch in at least 1 selected from typical injection solution, physiological **saline**, equilibrium liquid, glucose solution, sodium **lactate** solution, sodium acetate solution, trihydroxymethylaminomethane solution and sugar-salt solution to 100 ml, and mixing with 1.5 g **sodium chloride**, magnesium sulfate, calcium chloride, calcium gluconate, calcium **lactate**, sodium acetate and trihydroxymethylaminomethane.

USE - The composition is for emergency treatment and is particularly useful in patients with wound or shock due to e.g. blood loss, burns and brain injury.

ADVANTAGE - The composition is convenient to use, the therapeutic efficacy is rapidly achieved, with safety, storability and without complications by serotypes. The composition has a wide range of applications, and is able to save 50% of the normally required blood by **transfusion**.

Dwg.0/0

TECH UPTX: 20000128

TECHNOLOGY FOCUS - PHARMACEUTICALS - 100 ml of the composition comprises 4.2 +/- 0.2 g **sodium chloride** and 7.6 +/- 0.6 g **hydroxyethylstarch**. The typical injection solution can be water for injection, physiological **saline**, equilibrium liquid, glucose solution, sodium **lactate** solution, sodium acetate solution, trihydroxymethylaminomethane solution or sugar-salt water. The **hydroxyethylstarch** contains at least 10% **hydroxyethylstarch** having a molecular weight of 25000-45000. The **gelatin** derivative applied has a molecular weight of 20000-35000 and is preferably selected from urea-crosslinked **gelatin**, modified liquid **gelatin**, epoxidised **gelatin** and degraded **gelatin** polypeptide. The glucosan has a molecular weight of 30000-80000; the dextrin has a molecular weight of 8000-12000; the sodium alginate has molecular weight of 20000-26000; the pectin has a molecular weight of 20000-40000; and the pentahydroxyethylstarch has a molecular weight of 264000.

TECHNOLOGY FOCUS - POLYMERS - The polyvinylpyrrolidone has a molecular weight of 5000-700000.

L21 ANSWER 16 OF 16 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 1978-49978A [28] WPIDS
TI Prodn. of hydroxyethyl starch for use as plasma substitute - from waxy starch by reaction with ethylene oxide then controlled acid hydrolysis.
DC A11 A96 B04
PA (KYOR) KYORIN PHARM CO LTD; (OMOT-I) OMOTO H
CYC 1
PI DE 2700011 A 19780706 (197828)*
DE 2700011 C 19890803 (198931)
PRAI DE 1977-2700011 19770103
AB DE 2700011 A UPAB: 19930901

Prepn. of a **hydroxyethyl starch** (I) suitable for use as a plasma substitute comprises first **gelatinising** waxy cereal starch contg. >=99% amylopectin with hot water. It is then reacted with ethylene oxide in presence of alkali to a degree of substitution (D.S) of 0.50-0.55.

The resulting hydroxyethylated prod. is then hydrolysed under mild acid conditions, without changing the D.S. to give a material of intrinsic viscosity 0.09-0.14 dl/g. The prod. is then decolourised, purified by

reverse osmosis, dried and powdered.

A plasma substitute consisting of a 6% soln. of (I) in **lactated** Ringer's soln. (or its equivalent in which Na acetate **replaces** Na **lactate**) is also claimed.

(I) has no effect on human erythrocytes and the 6% Ringer's solns. effectively restore blood pressure after heavy loss without side effects. They are free from toxic by-prods. (e.g. as ethylene glycol) and toxic solvents. In rats, a 6% soln. of (I) in 0.9% **saline** has intravenous LD50 142-143 ml/kg, corresp. to 8.5 g/kg of (I).

L22 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 2001:776585 CAPLUS
DN 136:63868
TI The effects of balanced versus **saline**-based **hetastarch** and crystalloid solutions on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly surgical patients
AU Wilkes, Nicholas J.; Woolf, Rex; Mutch, Marjorie; Mallett, Susan V.; Peachey, Tim; Stephens, Robert; Mythen, Michael G.
CS Centre for Anaesthesia, Royal Free and University College Medical School, London, UK
SO Anesthesia & Analgesia (Baltimore, MD, United States) (2001), 93(4), 811-816
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
TI The effects of balanced versus **saline**-based **hetastarch** and crystalloid solutions on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly surgical patients
AB The **IV** administration of **sodium chloride** solns. may produce a metabolic acidosis and gastrointestinal dysfunction. The authors designed this trial to det. whether, in elderly surgical patients, crystalloid and colloid solns. with a more physiol. balanced **electrolyte** formulation, such as Hartmann's soln. and Hextend, can provide a superior metabolic environment and improved indexes of organ perfusion when compared with **saline**-based fluids. Forty-seven elderly patients undergoing major surgery were randomly allocated to one of two study groups. Patients in the Balanced Fluid group received an intraoperative fluid regimen that consisted of Hartmann's soln. and 6% **hetastarch** in balanced **electrolyte** and glucose injection (Hextend). Patients in the **Saline** group were given 0.9% **sodium chloride** soln. and 6% **hetastarch** in 0.9% **sodium chloride** soln. (**Hespan**). Biochem. indexes and acid-base balance were detd. Gastric tonometry was used as a reflection of splanchnic perfusion. Postoperative chloride levels demonstrated a larger increase in the **Saline** group than the Balanced Fluid group (9.8 vs. 3.3 mmol/L, P = 0.0001). Postoperative std. base excess showed a larger decline in the **Saline** group than the Balanced Fluid group (-5.5 vs -0.9 mmol/L, P = 0.0001). Two-thirds of patients in the **Saline** group, but none in the Balanced Fluid group, developed postoperative hyperchloremic metabolic acidosis (P = 0.0001). Gastric tonometry indicated a larger increase in the CO2 gap during surgery in the **Saline** group compared with the Balanced Fluid group (1.7 vs. 0.9 kPa, P = 0.0394). In this study, the use of balanced crystalloid and colloid solns. in elderly surgical patients prevented the development of hyperchloremic metabolic acidosis and resulted in improved gastric mucosal perfusion when compared with **saline**-based solns.
ST elderly surgery plasma substitute metabolic acidosis stomach perfusion; balanced crystalloid colloid soln plasma elderly; **saline** crystalloid colloid soln plasma elderly
IT Named reagents and solutions
RL: ADV (Adverse effect, including toxicity); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Ringer's **lactate**; effects of balanced vs. **saline** -based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)
IT Acid-base balance, blood

Blood substitutes
Electrolytes, biological
Human
Surgery
(effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

IT Aging, animal
(elderly; effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

IT Acidosis
(metabolic, hyperchloremic; effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

IT Stomach
(mucosa, perfusion; effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

IT **9005-27-0, Hespan** 235746-51-7, Hextend
RL: ADV (Adverse effect, including toxicity); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

IT 16887-00-6, Chloride, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(effects of balanced vs. **saline**-based **hetastarch** and crystalloid solns. on acid-base and **electrolyte** status and gastric mucosal perfusion in elderly humans undergoing surgery)

L22 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 2001:339087 CAPLUS
DN 135:313376
TI Intravenous rFVIIa administered for hemorrhage control in hypothermic coagulopathic swine with grade V liver injuries
AU Martinowitz, Uri; Holcomb, John B.; Pusateri, Anthony E.; Stein, Michael; Onaca, Nicholas; Freidman, Mony; Macaitis, Joseph M.; Castel, D.; Hedner, Ulla; Hess, John R.
CS Michael E. DeBakey Department of Surgery, Baylor College of Medicine, Joint Trauma Training Center, Ben Taub General Hospital, Houston, TX, 77030, USA
SO J. Trauma: Inj., Infect., Crit. Care (2001), 50(4), 721-729
CODEN: JOTRFA; ISSN: 1079-6061
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 80 THERE ARE 80 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB I.v. administration of recombinant activated human clotting factor VII (rFVIIa) has been used successfully to prevent bleeding in hemophilia patients undergoing elective surgery, but not in previously normal trauma patients. This study was conducted to det. whether rFVIIa was a useful adjunct to gauze packing for decreasing blood loss from grade V liver injuries in hypothermic and coagulopathic swine. All animals (n = 10, 35.+-.2 kg) underwent a 60% isovolemic exchange **transfusion** with 6% **hydroxyethyl starch** and were cooled to 33.degree. core temp. The swine then received a grade V liver injury and 30 s later, either 180 .mu.g/kg rFVIIa, or **saline** control. All animals were gauze packed 30 s after injury and resuscitated 5.5 min after injury with

lactated Ringer's soln. to their preinjury mean arterial pressure. Posttreatment blood loss, mean arterial pressure, resuscitation vol., and clotting studies were monitored for 1 h. Histol. of lung, kidney, and small bowel were obtained to evaluate for the presence of microvascular thrombi. At the time of injury, core temp. was 33.3.degree. .+-. 0.4.degree., Hb was 6.+-.0.7 g/dL, prothrombin time was 19.1.+-.1.0 s, activated partial thromboplastin time was 29.0.+-.4.8 s, fibrinogen was 91.+-.20 mg/dL, and platelets were 221.+-.57 .times. 105/mL, with no differences between groups ($p > 0.05$). Clotting factor levels confirmed a coagulopathy at the preinjury point. The post-treatment blood loss was less ($p < 0.05$) in group 1 (527.+-.323 mL), than in group 2 (976.+-.573 mL). The resuscitation vol. was not different ($p > 0.05$). One-hour survival in both groups was 100%. Compared with the control group, rFVIIa increased the circulating levels of VIIa and, despite hypothermia, shortened the prothrombin time 5 min after injection ($p < 0.05$). Lab. evaluation revealed no systemic activation of the clotting cascade. Postmortem evaluation revealed no evidence of large clots in the hepatic veins or inferior vena cava, or microscopic thrombi in lung, kidney, or small intestine. RFVIIa reduced blood loss and restored abnormal coagulation function when used in conjunction with liver packing in hypothermic and coagulopathic swine. No adverse effects were identified.

L22 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 2000:191461 CAPLUS
DN 133:68658
TI Extreme hemodilution in rabbits. An in vitro and in vivo thrombelastographic analysis
AU Nielsen, Vance G.; Baird, Manuel S.
CS Department of Anesthesiology, The University of Alabama, Birmingham, AL, 35249, USA
SO Anesth. Analg. (Baltimore) (2000), 90(3), 541-545
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB Isovolemic hemodilution is used to decrease the incidence of blood transfusions. However, the effects of the degree of hemodilution and the fluid used on hemostasis are controversial. The authors tested the hypothesis that hemodilution and the fluid administered would adversely alter Thrombelastog. (Haemoscope, Skokie, IL) variables (reaction time, .alpha. angle and maximal amplitude). Conscious rabbits had blood sampled from ear arteries and dild. 0% or 75% in vitro with 1 of 4 solns.: 6% **hetastarch** in 0.9% **NaCl**, 5% human albumin in 0.9% **NaCl**, or balanced **electrolyte** solns. contg. either 6% **pentastarch** or 6% **hetastarch**. Isoflurane-anesthetized rabbits were randomly assigned to groups (n = 9 per group) that underwent in vivo isovolemic hemodilution (75% of estd. blood vol. removed), with blood **replaced** with one of the 4 solns. mentioned previously. In vitro hemodilution resulted in a significant ($P < 0.05$) decrease in hemostatic function (increase in reaction time, decrease in .alpha. angle and maximal amplitude) that was largest after hemodilution with albumin. However, although in vivo hemodilution significantly ($P < 0.05$) decreased reaction time, increased the .alpha. angle, and decreased maximal amplitude, there were no significant fluid-dependent effects. The effects of hemodilution and the fluid used on Thrombelastog. (Haemoscope, Skokie, IL) variables are markedly different between in vitro and in vivo hemodilution studies.
ST hemodilution blood substitute thrombelastog; hetastarch pentastarch blood substitute hemodilution thrombelastog; **electrolyte** soln blood substitute hemodilution thrombelastog; serum albumin blood substitute hemodilution thrombelastog

L22 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 2000:109433 CAPLUS
DN 132:146441
TI Prevention of hypotension by a single 5-mg dose of ephedrine during small-dose spinal anesthesia in prehydrated cesarean delivery patients
AU Vercauteren, Marcel P.; Coppejans, Hilde C.; Hoffmann, Vincent H.; Mertens, Els; Adriaensen, Hugo A.
CS Department of Anesthesiology, University Hospital Antwerp, Edegem, B-2650, Belg.
SO Anesth. Analg. (Baltimore) (2000), 90(2), 324-327
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB To evaluate the effectiveness of prophylactic ephedrine for the prevention of hypotension assocd. with spinal anesthesia, 50 parturients undergoing cesarean delivery received either ephedrine 5 mg or **saline** **IV** in a double-blinded fashion immediately after the induction of spinal anesthesia. Spinal anesthesia was performed with hyperbaric bupivacaine 6.6 mg combined with sufentanil 3.3 .mu.g as part of a combined spinal-epidural technique. All patients received 1000 mL of **lactated** Ringer's soln. and 500 mL of **hydroxyethylstarch** 6% before the spinal injection. Addnl. ephedrine boluses (5 mg) were administered **IV** when the systolic blood pressure or heart rate decreased by more than 30% from baseline values, when systolic blood pressure became <100 mm Hg, or when patients complained of nausea or feeling faint. The height of the block was equal in the groups; however, more patients in the placebo group were found to develop hypotension (58% vs. 25%, $P < 0.05$). Only 2 (8%) patients in the ephedrine group developed hypotension with systolic blood pressure values <90 mm Hg, whereas 10 patients (42%) in the **saline** group experienced hypotension of this severity ($P < 0.05$). In addn., there was a higher incidence of nausea in the placebo-treated patients. The total amt. of ephedrine administered did not differ between groups. These findings suggest that the incidence and severity of hypotension are significantly reduced by the **IV** administration of a prophylactic dose of 5 mg ephedrine in patients receiving small-dose spinal anesthesia for cesarean delivery. Implications: Ephedrine is the drug most often used to correct hypotension during spinal anesthesia for cesarean delivery in healthy patients. A single **IV** dose of 5 mg decreases the occurrence and limits the severity of hypotension in prehydrated subjects receiving a small-dose spinal local anesthetic-opioid combination.

L22 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1999:319698 CAPLUS
DN 131:139210
TI Hextend, a physiologically balanced plasma expander for large volume use in major surgery: a randomized phase III clinical trial
AU Gan, T. J.; Bennett-Guerrero, E.; Phillips-Bute, B.; Wakeling, H.; Moskowitz, D. M.; Olufolabi, Y.; Konstadt, S. N.; Bradford, C.; Glass, P. S. A.; Machin, S. J.; Mythen, M. G.
CS Department of Anesthesiology, Duke University Medical Center, Durham, NC, 27710, USA
SO Anesth. Analg. (Baltimore) (1999), 88(5), 992-998
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Hextend (BioTime, Inc., Berkeley, CA) is a new plasma vol. expander contg. 6% **hetastarch**, balanced **electrolytes**, a **lactate** buffer, and physiol. levels of glucose. In preclin. studies, its use in shock models was assocd. with an improvement in outcome compared with alternatives, such as albumin or 6% **hetastarch** in **saline**. In a prospective, randomized, two-center study (n = 120), we compared the efficacy and safety of Hextend vs. 6% **hetastarch** in **saline** (HES) for the treatment of hypovolemia during major surgery. Patients at one center had a blood sample drawn at the beginning and the end of surgery for thromboelasto-graphic (TEG) anal. Hextend was as effective as HES for the treatment of hypovolemia. Patients received an av. of 1596 mL of Hextend: 42% received >20 mL/kg up to a total of 5000 mL. No patient received albumin. Hextend-treated patients required less intraoperative calcium (4 vs. 220 mg; $P < 0.05$). In a subset anal. of patients receiving red blood cell transfusions (n = 56; 47%), Hextend-treated patients had a lower mean estd. blood loss (956 mL less; $P = 0.02$) and were less likely to receive calcium supplementation ($P = 0.04$). Patients receiving HES demonstrated significant prolongation of time to onset of clot formation (based on TEG) not seen in the Hextend patients ($P < 0.05$). No Hextend patient experienced a related serious adverse event, and there was no difference in the total no. of adverse events between the two groups. The results of this study demonstrate that Hextend, with its novel buffered, balanced **electrolyte** formulation, is as effective as 6% **hetastarch** in **saline** for the treatment of hypovolemia and may be a safe alternative even when used in vols. up to 5 L.

L22 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1999:309077 CAPLUS
DN 131:139203
TI Extreme, progressive isovolemic hemodilution with 5% human albumin, pentalyte, or extend does not cause hepatic ischemia or histologic injury in rabbits
AU Nielsen, Vance G.; Baird, Manuel S.; Brix, Amy E.; Matalon, Sadis
CS Department of Anesthesiology, The University of Alabama at Birmingham, Birmingham, AL, 35249-6810, USA
SO Anesthesiology (1999), 90(5), 1428-1435
CODEN: ANESAV; ISSN: 0003-3022
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB Background: Physicians and their patients are greatly concerned about perioperative blood administration. Although isovolemic hemodilution is utilized to decrease the incidence of **transfusion**, it is unclear at what degree of hemodilution hepatoenteric ischemia and injury occurs. The authors hypothesized that hepatic ischemia, systemic ischemia, and tissue injury would occur during hemodilution in rabbits, and that the severity of ischemia and injury may be dependent on the fluid administered. Methods: Rabbits anesthetized with isoflurane were assigned randomly to a sham-operated group (n = 8) or groups that underwent four isovolemic hemodilutions (25% of the blood vol. removed at hourly intervals), with blood **replaced** with one of three solns.: balanced **electrolyte** solns. contg. 6% **pentastarch** (n = 8), 6% **hetastarch** (n = 9), or 5% human albumin in normal **saline** (n = 8). Arterial ketone body ratio and plasma **lactate**, resp., served as measures of hepatic and systemic ischemia. Gastric, duodenal, and hepatic histol. injury was assessed post mortem. Results: Hemodilution from a baseline hematocrit of about 33% to about 8% (third hemodilution) with all three colloids did not result in a significant increase in plasma **lactate** concn. or decrease in arterial ketone body ratio. At a hematocrit of about 5% (fourth

hemodilution), the **hetastarch** group had a significantly (P < 0.05) greater plasma **lactate** concn. than the sham-operated and 5% human albumin groups. There were no significant differences in arterial ketone body ratio or histol. injury between the groups. Conclusions: Isovolemic hemodilution (approx. 5% hematocrit) with albumin, **pentastarch**, or **hetastarch** solns. does not result in significant hepatic ischemia or injury assessed by histol.

L22 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1997:726734 CAPLUS
DN 128:18545
TI Effect of recombinant human serum albumin on survival in a rat model of exchange **transfusion**
AU Kido, Hideaki; Kubo, Yoshiji; Hayashi, Kazutaka; Inoue, Satoru; Ebisu, Hajime; Egi, Yasuhiro; Nakamura, Norifumi
CS Central Research Laboratories, Green Cross Corporation, Japan
SO Yakuri to Chiryo (1997), 25(Suppl. 8), S/1957-S/1963
CODEN: YACHDS; ISSN: 0386-3603
PB Raifu Saiensu Shuppan K.K.
DT Journal
LA Japanese
TI Effect of recombinant human serum albumin on survival in a rat model of exchange **transfusion**
AB We examd. the effect of 5% recombinant human serum albumin soln. (rHSA) on the prognosis in a severe hemorrhagic shock model induced by isovolemic exchange **transfusion** (60 mL/kg) of rats. In this model, 5%rHSA improved the survival rate (9/10) compared with **saline** (1/10) and **lactate** Ringer's soln. (LR, 1/10). 5% Native human serum albumin (nHSA, 7/10) and **hydroxyethyl starch** (HES,9/10) showed the similar effect, but the survival rate of 2.4-fold dild. HES, whose colloid osmotic pressure (COP) make uniform with 5%HSA, was no more than 30%(3/10). Rapid decrease in COP after exchange **transfusion** was obsd. in HES-treated group, so it was suggested that the maintaining effect of circulatory blood vol. in HESS was relatively weak according to the short half-life. 5%RHSA suppressed the increased in PaO2 and the decrease in PaCO2 and pH by excessive respiration immediately after exchange **transfusion**. These results suggested that 5%rHSA was superior to crystalloid in resuscitative and metabolic efficiencies, and showed prognostic effect based on long-sustained vol. expansion more than artificial colloid soln. These effects of 5%rHSA were almost as same as 5%nHSA.
IT Hemorrhage
Hemorrhagic shock
(effect of recombinant human serum albumin on survival in a rat model of exchange **transfusion**)
IT Serum albumin
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(effect of recombinant human serum albumin on survival in a rat model of exchange **transfusion**)

L22 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1997:266301 CAPLUS
DN 127:1109
TI Circulating Na+/K+-ATPase inhibitors: effects of neuropeptides, volume expansion and salt loading in conscious rats
AU Schmitt, Bernhard M.; Unger, Thomas; Rettig, Rainer
CS Dep. Pharmacol., Univ. Heidelberg, Germany
SO Clin. Exp. Pharmacol. Physiol. (1997), 24(2), 131-138
CODEN: CEXPB9; ISSN: 0305-1870
PB Blackwell
DT Journal
LA English

AB In mammalian plasma, many different inhibitors of Na+/K+-ATPase are present, but it is not clear whether their net effect on Na+/K+-ATPase activity changes during the regulation of **electrolyte** and fluid balance. The authors studied Na+/K+-ATPase inhibition by plasma exts. in conscious rats during short- and long-term body fluid regulation. Male, adult, conscious, freely moving Wistar rats were subjected to one of the following protocols: (i) intracerebroventricular (i.c.v.) injections of angiotensin II (AngII; 1, 10 and 100 ng), the AngII receptor antagonist losartan (1 .mu.g), atrial natriuretic peptide (ANP-III; 1 .mu.g) or isotonic **saline** (IS); (ii) intra-arterial (i.a.) injections of IS (6 or 10 mL), hypertonic **saline** (HS; 1.2% **NaCl**, 5 mL) or hypertonic plasma expander (HPS; 3.5% **hetastarch** in HS, 5 mL); or (iii) a low salt-high salt-low salt diet sequence (0.18/1.8/0.18% **NaCl** chow for 5 days each with controls receiving 0.18% **NaCl** on all days). Bodyweight, the intake of food and water, urine vol. and Na+ concn. and wt. of feces were detd. daily. Plasma samples were withdrawn repeatedly throughout the resp. protocols, extd. on C18-reversed phase columns and assayed for their effect on the activity of different Na+/K+-ATPase prepns. The inhibition of rat brain Na+/K+-ATPase by plasma exts. was not significantly changed by i.c.v. injection of AngII, losartan, ANP-III and IS within the observation period (30 min from resp. stimuli). Similarly, no significant changes occurred after acute vol. expansion by i.a. injection of IS or HS within 120 min; upon HPS, however, Na+/K+-ATPase inhibition was decreased by approx. 20%, probably due to passive diln. During the high-salt diet, fluid retention was effectively counteracted by an adaptive increase of urinary sodium excretion. Throughout the protocol, inhibition of pig brain Na+/K+-ATPase by plasma exts. did not differ significantly between groups. It is concluded from these results that the short- or long-term control of body fluids in conscious rats is not assocd. with systematic changes in Na+/K+-ATPase inhibition by plasma factors.

L22 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1997:193858 CAPLUS
DN 126:258790
TI Influence on liver, renal tissue blood flow, and metabolic function during hemodilution with hypotension. Hemodilution with 6% **hydroxyethyl starch saline** and controlled hypotension with sodium nitroprusside
AU Ikumi, Shuji; Kuno, Masatoshi
CS Department of Anesthesiology School of Dentistry, Showa University, Japan
SO Shika Yakubutsu Ryoho (1996), 15(3), 170-178
CODEN: SYRYEJ; ISSN: 0288-1012
PB Nippon Shika Yakubutsu Ryoho Gakkai
DT Journal
LA English
TI Influence on liver, renal tissue blood flow, and metabolic function during hemodilution with hypotension. Hemodilution with 6% **hydroxyethyl starch saline** and controlled hypotension with sodium nitroprusside
AB Respiratory and metabolic changes as well as liver and kidney blood flow responses under acute hemodilution and controlled hypotension was studied in 9 mongrel dogs that were anesthetized with isoflurane and paralyzed with Pancuronium. Hemodilution was produced by removal of 20 mL/kg whole blood and infusing 6% **hydroxyethyl starch saline** (Salinhes) at 1.5 times the vol. of blood removed. Subsequently, hypotension to pressure of 70 mmHg was induced for 90 min by i.v. **infusion** of Sodium nitroprusside. The results were as follows:. (1) The CI significantly increased during hypotension after hemodilution. (2) P.DELTA.O2 significantly increased after hemodilution, but showed no significant changes during hypotension. PaO2 and PaCO2 showed no significant changes during hypotension after hemodilution. (3) Hepatic and renal cortical blood flow significantly increased after

hemodilution, but showed no significant changes during hypotension. Renal medullary blood flow significantly increased after hemodilution and tended to increase during hypotension, although the change was not significant. (4) PH and BE significantly decreased after hemodilution and during hypotension, but there was no significant change between these two periods. The **lactate** level significantly increased during hypotension, but cyan intoxication induced symptoms, such as an increase in P.DELTA.O2 or HR, were not obsd. From these findings, the present technique is considered to be useful for clin. application.

IT Antihypertensives
Blood flow
Blood substitutes
Kidney
Liver
(influence on liver, renal tissue blood flow, and metabolic function during hemodilution with **hydroxyethyl starch** **saline** and hypotension with sodium nitroprusside)

IT Physiological **saline** solutions
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(influence on liver, renal tissue blood flow, and metabolic function during hemodilution with **hydroxyethyl starch** **saline** and hypotension with sodium nitroprusside)

IT **9005-27-0, Hydroxyethyl starch** 14402-89-2, Sodium nitroprusside
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(influence on liver, renal tissue blood flow, and metabolic function during hemodilution with **hydroxyethyl starch** **saline** and hypotension with sodium nitroprusside)

IT 50-21-5, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(influence on liver, renal tissue blood flow, and metabolic function during hemodilution with **hydroxyethyl starch** **saline** and hypotension with sodium nitroprusside)

L22 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1997:119200 CAPLUS
DN 126:135642
TI Use of hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device
IN Dizerega, Gere Stodder
PA University of Southern California, USA
SO PCT Int. Appl., 121PP
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9640168	A2	19961219	WO 1996-US8098	19960531
	WO 9640168	A3	19970123		
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5807833	A	19980915	US 1995-482235	19950607
	CA 2223573	AA	19961219	CA 1996-2223573	19960531
	AU 9659569	A1	19961230	AU 1996-59569	19960531
	AU 722836	B2	20000810		
	EP 831856	A2	19980401	EP 1996-916821	19960531
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 11506741	T2	19990615	JP 1996-500875	19960531
PRAI	US 1995-482235	A	19950607		

WO 1996-US8098 W 19960531

IT Reagents
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Ringer's **lactate**; hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device)

IT Physiological **saline** solutions
(phosphate-buffered; **hydroxyethyl starch** to prevent post surgical adhesion and as an intracavity carrier device)

IT 56-14-4, Succinate, biological studies 71-50-1, Acetate, biological studies 71-52-3, **Bicarbonate** 77-86-1 126-44-3, Citrate, biological studies 3812-32-6, Carbonate, biological studies 11129-12-7, Borate 14265-44-2, Phosphate, biological studies
RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(buffer; hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device)

L22 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1994:449804 CAPLUS
DN 121:49804
TI Hypertonic hydroxyethyl starch restores hepatic microvascular perfusion in hemorrhagic shock
AU Vollmar, Brigitte; Lang, Gunter; Menger, Michael D.; Messmer, Konrad
CS Inst. Surg. Res., Univ. Munich, Munich, D-8000, Germany
SO Am. J. Physiol. (1994), 266(5, Pt. 2), H1927-H1934
CODEN: AJPHAP; ISSN: 0002-9513
DT Journal
LA English
AB The influence of small-vol. resuscitation (hypertonic **saline**-10% **hydroxyethyl starch**, HS/HES) on liver microcirculation (intravital fluorescence microscopy) was studied in a non-heparinized hemorrhagic shock model [mean arterial pressure (MAP) 40 mmHg for 1 h] in rats. Resuscitation was performed with Ringer **lactate** (RL, 4-fold shed vol./ 20 min), 10% **hydroxyethyl starch** 200/0.6 (HES, shed vol./5 min), or 7.2% **NaCl**-10% **hydroxyethyl starch** 200/0.6 (HS/HES, 10% shed vol./2 min). One hour after resuscitation, MAP increased in all groups, but it did not return to preshock values. HES (16% non-perfused sinusoids) and HS/HES (14% non-perfused sinusoids), but not RL (24% non-perfused sinusoids), reduced shock-induced sinusoidal perfusion failure (28%) with restoration of leukocyte velocity in sinusoids (S) and post-sinusoidal venules (V). Shock-induced stasis/adherence of leukocytes was further increased after resuscitation with RL (S, 38%, V, 55%) and HES (S, 31%; V, 23%). In contrast, resuscitation with HS/HES prevented increased leukocyte stasis in sinusoids (-4%) as well as adherence to endothelial lining of post-sinusoidal venules (-5%). The authors conclude that **replacement** of only 10% of actual blood loss by small-vol. resuscitation (HS/HES) can restore hepatic microvascular perfusion and prevent reperfusion-induced leukocyte stasis/adherence.

IT Liver
(microcirculation of, hemorrhagic shock decrease of, hypertonic **saline-hydroxyethyl starch** reversal of)

IT Hemorrhage
(shock from, liver microcirculation decrease by, hypertonic **saline-hydroxyethyl starch** reversal of)

IT Shock
(hemorrhagic, liver microcirculation decrease by, hypertonic **saline-hydroxyethyl starch** reversal of)

IT Physiological **saline** solutions
(hypertonic, **hydroxyethyl starch**-contg., microcirculation decrease by hemorrhagic shock reversal by)

IT Circulation
(micro-, of liver, hemorrhagic shock decrease of, hypertonic

saline-hydroxyethyl starch reversal of)
IT **9005-27-0, Hydroxyethyl starch**
RL: BIOL (Biological study)
(hypertonic **saline** contg., liver microcirculation decrease by hemorrhagic shock reversal by)
IT 7647-14-5, **Sodium chloride**, biological studies
RL: BIOL (Biological study)
(hypertonic soln. of, **hydroxyethyl starch**-contg., microcirculation decrease by hemorrhagic shock reversal by)

L22 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1990:400281 CAPLUS
DN 113:281
TI Mesenteric oxygen metabolism, ileal mucosal hydrogen ion concentration, and tissue edema after crystalloid or colloid resuscitation in porcine endotoxic shock: comparison of Ringer's **lactate** and 6% hetastarch
AU Baum, Tad D.; Wang, Hailong; Rothschild, Heidie R.; Gang, David L.; Fink, Mitchell P.
CS Med. Cent., Univ. Massachusetts, Worcester, MA, 01655, USA
SO Circ. Shock (1990), 30(4), 385-97
CODEN: CRSHAG; ISSN: 0092-6213
DT Journal
LA English
TI Mesenteric oxygen metabolism, ileal mucosal hydrogen ion concentration, and tissue edema after crystalloid or colloid resuscitation in porcine endotoxic shock: comparison of Ringer's **lactate** and 6% hetastarch
AB This study performed an exptl. trial to compare crystalloid (Ringer's **lactate**) and colloid (**hetastarch**) resuscitation in pentobarbital-anesthetized pigs. Superior mesenteric arterial blood flow (Qsma) was measured using an ultrasonic flow probe, and ileal intramuscosal hydrogen ion concn. ([H+]I) was estd. tonometrically. Beginning at t = 0 min, all animals were infused over 20 min with Escherichia coli (0111:B4) lipopolysaccharide (LPS; 150 .mu.g/kg). Starting at t = 0 min and continuing for the duration of the expt. (3 h), pigs in group I were resuscitated with Ringer's **lactate** (1.2 mL/kg min), whereas animals in group II were infused with 6% **hetastarch** in **saline** (0.4 mL/kg min). Systemic and mesenteric hemodynamic changes induced by LPS were similar in both groups; mean arterial pressure and systemic vascular resistance index decreased, but cardiac index was well preserved. Central venous pressure increased ($P < .05$). Superior mesenteric O2 delivery decreased in both groups, although mesenteric O2 uptake was unchanged. Illeal [H+]I increased in both groups. Gravimetrically detd. extravascular water was greater in lung and ileum in group I as compared to group II. Although crystalloid **infusion** was assocd. with greater tissue edema, this effect did not translate into a difference in systemic or regional (i.e., mesenteric) O2 uptake or greater ileal tissue acidosis.
IT Named reagents and solutions
RL: BIOL (Biological study)
(Ringer's **lactate**, endotoxin shock resuscitation by, as crystalloid regimen, oxygen transport and tissue edema and acidosis after)

L22 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1989:128332 CAPLUS
DN 110:128332
TI Lung and muscle water after crystalloid and colloid **infusion** in septic rats: effect on oxygen delivery and metabolism
AU Rackow, Eric C.; Astiz, Mark E.; Schumer, William; Weil, Max Harry
CS Chicago Med. Sch., Univ. Health Sci., North Chicago, IL, 60064, USA
SO J. Lab. Clin. Med. (1989), 113(2), 184-9

CODEN: JLCMAK; ISSN: 0022-2143
DT Journal
LA English
TI Lung and muscle water after crystalloid and colloid **infusion** in septic rats: effect on oxygen delivery and metabolism
AB The effect of crystalloid **infusion** on extravascular lung water and muscle water in septic rats was compared with that of colloid **infusion**. The relationship of lung and muscle edema to arterial oxygenation and muscle energy metab. during sepsis was also examd. Cecal ligation and perforation were used to induce sepsis. Five animals served as sham-operated controls. Five animals were infused with 0.9% **saline** soln. and five with 10% low-mol.-wt. **hydroxyethyl starch** (**hetastarch**). Thermodiln. cardiac output, plasma colloid osmotic pressure, and arterial blood gases were sequentially measured over a 6-h interval. At 6 h, a biopsy specimen was taken from the rectus femoris and the lungs and adductor magnus muscle were harvested for gravimetric anal. (wet-dry/dry wt. ratio). The colloid osmotic pressure was 16.1 mmHg in the control animals, 9.3 mm Hg in the **saline** soln.-infused animals, and 21.6 mmHg in the **hetastarch**-infused animals at 6 h. The lung wet-dry/dry wt. ratio was 3.46 in the control animals, 3.74 in the **saline** group, and 3.64 in the **hetastarch** group (difference not significant). Arterial oxygenation was not different in the three groups. Muscle wet-dry/dry wt. ratio was 3.11 in the control animals, 2.75 in the **hetastarch**-infused animals, and 3.06 in the **saline** -infused group (not significant). There were no differences in skeletal muscle energy prodn. or **lactate**/pyruvate ratio between the three groups. Thus, lung and muscle extravascular water is not increased with crystalloid as compared with colloid **infusion** during sepsis despite decreases in plasma colloid osmotic pressure. Furthermore, crystalloid **infusion** did not impair tissue energy metab. compared with colloid **infusion** during sepsis.
ST sepsis lung edema crystalloid colloid **infusion**; muscle metab sepsis crystalloid colloid **infusion**
IT Sols
(blood plasma expansion by **infusion** of, in sepsis, edema in relation to)
IT Isotonic solutions
(**saline**, for plasma expansion in sepsis, edema in relation to)
IT Solutes
(crystalloids, blood plasma expansion by **infusion** of, in sepsis, edema in relation to)
IT Physiological **saline** solutions
(isotonic, for blood plasma expansion in sepsis, edema in relation to)

L22 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2002 ACS
AN 1988:563166 CAPLUS
DN 109:163166
TI Immunological and physiological effects of different resuscitation fluids in the guinea pig burn model
AU Fowler, Carol L.; Miller, Harvey I.; Nance, F. Carter
CS Sch. Med., Louisiana State Univ., New Orleans, LA, USA
SO Med. Sci. Res. (1988), 16(15), 795-6
CODEN: MSCREJ; ISSN: 0269-8951
DT Journal
LA English
AB In a guinea pig burn model, changes in survival were produced by 6 different resuscitation fluids. The best survival rates were produced by Ringer's acetate soln., hypertonic **saline** soln. contg. acetate, and Ringers's **lactate** soln. The solns. contg. **lactate** (Ringer's **lactate** and hypertonic **saline** contg. **lactate**) were unable to maintain normal core temp. or wt.;

Ringer's acetate was the only **fluid** that antagonized wt. **loss**. White blood cells, differential count, polymorphonuclear neutrophil phagocytosis, cardiac output, and blood pressure were similar in all groups except for the **hetastarch** soln.-treated group in which the normal neutrophil response to burns was suppressed. Furthermore, resuscitation with **hetastarch** soln. depressed the cardiac output for the entire 24 h of **infusion**. Apparently, the compn. of the resuscitation fluid profoundly affects the prognosis of the burned animal; acetate-contg. fluids were the most beneficial.

IT Physiological **saline** solutions
(burn shock treatment with)

IT Named reagents and solutions
RL: BIOL (Biological study)
(Ringer's **lactate**, burn shock treatment with)

IT Physiological **saline** solutions
(hypertonic, acetate- and **lactate**-contg., burn shock treatment with)

IT 50-21-5, biological studies 64-19-7, biological studies 72-17-3, Sodium **lactate** 127-09-3, Sodium acetate
RL: BIOL (Biological study)
(physiol. **saline** soln. contg., burn shock treatment with)

L22 ANSWER 15 OF 17 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 2002-088755 [12] WPIDS
CR 1995-036128 [05]; 1996-321575 [32]; 1998-076406 [07]; 1999-609622 [52]; 2000-504958 [38]; 2001-327117 [29]
DNN N2002-065354 DNC C2002-027212
TI Artificial plasma like aqueous solution useful as a blood substitute comprises **hydroxyethyl starch, sodium, chloride**, potassium and calcium ions.
DC A11 A96 B04 D22 P34
IN SEGALL, J M; SEGALL, P E; STERNBERG, H; WAITZ, H D
PA (BIOT-N) BIOTIME INC
CYC 1
PI US 6300322 B1 20011009 (200212)* 12p
ADT US 6300322 B1 CIP of US 1993-71533 19930604, CIP of US 1993-133527 19931007, CIP of US 1994-253384 19940603, Cont of US 1994-364699 19941228, Cont of US 1997-780974 19970109, CIP of US 1997-886921 19970702, CIP of WO 1997-US19964 19971031, CIP of US 2000-530006 20000420, US 2000-565784 20000505
FDT US 6300322 B1 CIP of US 5407428, CIP of US 5702880, CIP of US 5945272
PRAI US 2000-565784 20000505; US 1993-71533 19930604; US 1993-133527 19931007; US 1994-253384 19940603; US 1994-364699 19941228; US 1997-780974 19970109; US 1997-886921 19970702; WO 1997-US19964 19971031; US 2000-530006 20000420
TI Artificial plasma like aqueous solution useful as a blood substitute comprises **hydroxyethyl starch, sodium, chloride**, potassium and calcium ions.
AB US 6300322 B UPAB: 20020221
NOVELTY - Artificial plasma-like aqueous solution (I) comprises hydroxyethyl starch, sodium ions (70-160, preferably 110 mM), chloride ions (70-160 mM), potassium ions (0-5 mM) and calcium ions (at least 0.5 mM). The starch has an average molecular weight of about at least 150,000 Daltons.

USE - In application in which at least a portion of a host's blood volume is **replaced** with a blood substitute solution e.g. surgical procedures including procedures involving a reduction in the temperature of a host from the host's normal body temperature; as a blood substitute; to maintain physiological integrity following death; as a cold preservation agent for tissue or organ; in regional chemoperfusion.

ADVANTAGE - (I) maintains a subject (which has lost a significant amount of blood e.g. 20-98 % of its blood) at normal body temperatures in a pressurized environment at increased oxygen concentration above

atmospheric oxygen tension up to 100 % oxygen. (I) maintains the subject in a high oxygen concentration, either continuously or periodically until enough blood components are synthesized by the subject to support life at atmospheric pressure and oxygen concentration. (I) maintains the subject at temperatures lower than normal body temperature and at a reduced rate of metabolism after traumatic life threatening injury until appropriate supportive or corrective surgical procedures can be performed. (I) maintains a patient having a rare blood or tissue type until an appropriate matching donor can be found and **replacement** blood units or other organs can be obtained. (I) maintains the physiological integrity of an organ donor subject immediately, after the occurrence of brain death, minimizing ischemia of vital organs and can be maintained for periods of time, thus maximizing the number of organs that can be effectively used from one donor for potential transplant recipients. Dwg.0/0

TECH UPTX: 20020221

TECHNOLOGY FOCUS - POLYMERS - Preferred Starch: The hydroxyethyl starch has an average molecular weight of 400,000-550,000 (preferably 150,000-350,000) Daltons. The starch is hetastarch or pentastarch. Preferred Aqueous Solution: (I) comprises potassium ions in a range of 2-3 mM (I) further comprises magnesium ions (0-10 mM) and a dynamic buffering system.

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Aqueous Solution: (I) further comprises a simple sugar (II) and does not include a conventional biological buffer. The dynamic buffering system comprises an organic carboxylic acid, salt or ester (preferably **lactate** (at least about 5 mM)).

TT TT: ARTIFICIAL PLASMA AQUEOUS SOLUTION USEFUL BLOOD SUBSTITUTE COMPRISE **HYDROXYETHYL STARCH SODIUM CHLORIDE** POTASSIUM CALCIUM ION.

L22 ANSWER 16 OF 17 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 2000-096308 [08] WPIDS
DNC C2000-027951
TI Production of a hemoglobin blood substitute for administration to patients in need of increased oxygen perfusion, in the treatment of e.g. septic shock.
DC B04
IN ROONEY, M W
PA (ROON-I) ROONEY M W
CYC 1
PI US 6005078 A 19991221 (200008)* 21p
ADT US 6005078 A US 1996-645744 19960514
PRAI US 1996-645744 19960514
AB US 6005078 A UPAB: 20000215

NOVELTY - Production of a hemoglobin blood substitute comprises washing erythrocytes, adding a buffer, stirring, centrifuging, adding an **electrolyte** to the supernatant, centrifuging, isolating the supernatant, and filtering.

DETAILED DESCRIPTION - Production of a hemoglobin blood substitute comprises:

(a) washing a first volume of erythrocytes with **saline-hetastarch** solution at pH 4.7 and packing the erythrocytes by centrifugation at 1500 g for 20 minutes;

(b) adding a second volume of cold dibasic sodium phosphate buffer at pH 9.6, where the second volume is not more than twice the first erythrocyte volume, and where the hemoglobin mixture formed has a hemoglobin concentration of 10.5 wt. %;

(c) stirring slowly for at least 10 minutes;

(d) centrifuging the product and isolating the first supernatant;

(e) adding **electrolyte** to the supernatant to give an isotonic concentration so that the color of the first supernatant is

transformed from dark cherry red to opaque bright red;

(f) centrifuging the resulting mixture;

(g) isolating the supernatant of step (f), which comprises 100 % cytosomal material diluted in a buffer, the supernatant being dark cherry red; and

(h) passing the second supernatant through a filter of pore size at most 0.25 micro m to produce the hemoglobin blood substitute.

USE - The process is used for preparing a hemoglobin blood substitute (claimed) for administration to patients in need of increased oxygen perfusion either systemically or to regional organs, especially the heart or skeletal muscle. The hemoglobin blood substitute is used in the treatment of diseases or medical conditions in which intravascular or intraosseous administration of a resuscitative fluids or blood plasma expanders are required. Such conditions include hemorrhagic hypertension, septic shock, cardiopulmonary bypass, neoplastic anemias, plasma and extra-cellular **fluid loss** from burns, stroke, angioplasty, cardioplegia, radiation therapy, acute myocardial infarction, and routine and lengthy surgical procedures.

ADVANTAGE - The hemoglobin blood substitute produced is free of membrane or membrane-associated cytoskeletal material, contains natural methemoglobin reducing systems, does not require dialysis or adjustment of potassium concentration, is easily prepared, and does not require extensive processing. The substitute does not cause hypertension (vasoconstriction) unlike prior art, and because it is homologous it carries less risk of immunological incompatibility.

Dwg.0/11

TECH UPTX: 20000215

TECHNOLOGY FOCUS - BIOLOGY - Preferred Components: The erythrocytes are derived from canine, human, bovine or ovine erythrocytes.

Preferred Process: Step (a) comprises serial washings with phosphate-buffered **saline**/6 % **hetastarch** solution at pH 7.4. Step (d) comprises centrifugation at 28000 g for at least 2.5 hours at 4 degrees C, and step (f) comprises centrifugation at 28000 g for 1 hour at 40 degrees C. The **electrolyte** in step (e) is **sodium chloride**, added to a concentration of 150 mM. The **electrolyte** optionally contains 3 mM potassium chloride and 1.5 mM calcium chloride. Step (h) comprises serially passing the second supernatant through a 5.0 micron filter, a 1.0 micron filter, a 0.45 micron filter, and a 0.25 micron filter, at a flow rate of 250 ml/minute.

L22 ANSWER 17 OF 17 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 1992-060696 [08] WPIDS
DNC C1992-027496
TI Artificial blood comprising haemoglobin-including liposome - with polyethylene glycol bound hydrogenated natural phospho-lipid.
DC A96 B04
PA (TERU) TERUMO CORP
CYC 1
PI JP 04005242 A 19920109 (199208)*
JP 3085963 B2 20000911 (200051) 6p
ADT JP 3085963 B2 JP 1990-107946 19900424
FDT JP 3085963 B2 Previous Publ. JP 04005242
PRAI JP 1990-107946 19900424
AB JP 04005242 A UPAB: 19931006

Artificial blood comprises modified haemoglobin-including liposome upon which an aggregation inhibitor, having a hydrophobic polymer moiety on one end and a hydrophilic polymer moiety on the other, is fixed. The inhibitor has hydrophobic end to the membrane surface so that the polymer is oriented with the hydrophilic end stretching outward from the surface. The liposome is suspended in aq soln of artificial plasma comprising water-sol. polymers.

The aggregation inhibitor is a polyethylene glycol-bound hydrogenated natural phospholipid. The av mol wt of the water-sol polymer is

20,000-70.000. The water-sol polymer is **hydroxyethyl starch**. The crystalline osmotic pressure of the artificial blood is acceptably adjusted to that of the living body to when it is administered. The colloidal osmotic pressure of the artificial blood is adjusted to that of the living body to when it is administered. The compsn of **electrolytes** is the same as that of the plasma. The compsn of the **electrolytes** is the same as that of Ringer soln, lactic acid Ringer soln or Crebs-Ringers soln.

USE/ADVANTAGE - The artificial blood is used as artificially adjusted oxygen-carrying infusions in lifesaving therapy for patients with massive bleeding. Low viscosity of the artificial blood resulting from the action of aggregation inhibitors renders easy the administration to living bodies without the fear of clogging by aggregates in blood capillaries. Also, the extremely low toxicity can realise its massive administration with safety.

In an example, a mixt of hydrogenated soybean lecithin, cholesterol, and myristic acid in CH2Cl2 was concd, 50% hemoglobin aq soln (1000 ml) was added. The resulting liposome (av particle size 0.2 micron) was suspended in **saline** (10% hemoglobin concn). To this was added **saline** contg 5% polyethylene glycol-bound hydrogenated soybean lecithin and the resulting liposome was re-suspended in 6% **hydroxyethyl starch** aq **saline** (av mol wt 30,000-40,000, 10% hemoglobin

=> d 23 74 98 101 105 123 132 bib ab

L23 ANSWER 23 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1999:633167 CAPLUS
DN 132:178990
TI Effect of hypertonic **saline-hydroxyethyl starch** on gastric mucosa damage of rabbits during hemorrhagic shock
AU Liu, Dingjing; Wang, Junyi; Zhang, Zhenqian; Cai, Chun; Zhang, Songtao
CS Department of Emergency Medicine, Xijing Hospital, Fourth Military Medical University, Xi'an, 710033, Peop. Rep. China
SO Disi Junyi Daxue Xuebao (1999), 20(8), 710-712
CODEN: DJDXEG; ISSN: 1000-2790
PB Disi Junyi Daxue Xuebao Bianjibu
DT Journal
LA Chinese
AB Whether hypertonic **saline-hydroxyethyl starch** (HSH) exerts any protective effect on the gastric mucosa damage of rabbits during resuscitation from hemorrhagic shock was studied. Twenty-four white rabbits were randomly divided into 4 groups : normal control (n = 6); HSH resuscitation group (n = 6); hypertonic **saline** (HS) resuscitation group (n = 6) and normal **saline** (NS) resuscitation group (n = 6). A hemorrhagic shock animal model was prepd. The levels of ATP, energy charge (EC), nucleic acid metab., superoxide dismutase (SOD) and malondialdehyde (MDA) in gastric mucosa tissue were detd. and the area d. of gastric mucosa lesions (ADGML) were measured. ATP, EC and SOD levels of gastric mucosa tissue in HSH group were significantly higher than those in HS and NS groups 90 min after the resuscitation. Whiles the MDA and ADGML levels of gastric mucosa tissue were lower. The nucleic acid metab. levels of gastric mucosa tissue in HSH group, similar to those in normal control group, were higher than those in HS and NS groups. HSH can mitigate gastric mucosa damage during resuscitation from hemorrhagic shock.

L23 ANSWER 74 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1987:131463 CAPLUS
DN 106:131463
TI Effects of hydroxyethylstarch (Hespan), a plasma expander, on the functional activity of the reticuloendothelial system. Comparison with human serum albumin and pyran copolymer
AU White, Kimber L., Jr.; Krasula, Richard W.; Munson, Albert E.; Holsapple, Michael P.
CS Med. Coll. Virginia, Virginia Commonw. Univ., Richmond, VA, 23298, USA
SO Drug Chem. Toxicol. (1977) (1986), 9(3-4), 305-22
CODEN: DCTODJ; ISSN: 0148-0545
DT Journal
LA English
AB The effect of an i.v. bolus **infusion** of the plasma expander **Hespan** (hydroxyethylstaroh)(HES) [**9005-27-0**] on the functional activity of the reticuloendothelial system (RES) was studied. RES function was detd. by vascular clearance of 51chromium-labeled sheep erythrocytes and the subsequent uptake into the liver, spleen, lungs, and thymus at 1 h, 3 h, 6 h, 1 day, 3 days, and 7 days postinfusion. **Infusion** with the low doses of HES (20 and 40 mL/kg) produced changes in vascular clearance which were comparable to physiol. **saline**. **Infusion** with 80 mL/kg HES produced a biphasic response with a modest suppression of vascular clearance (i.e., 151% increase in half-life) and hepatic phagocytosis (50%) during the first 6 h after injection, followed by recovery at 24 h and a stimulation in hepatic uptake (42%) after 3 days. These effects by HES were compared to those produced by **infusion** with 80 mL/kg human serum albumin, a comparable colloid and with 80 mL/kg pyran copolymer, a pos. control.

L23 ANSWER 98 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1976:155647 CAPLUS
DN 84:155647
TI Studies of the preparation, properties, and physicochemical characterization of hydroxyethyl starch
AU Greenwood, C. T.
CS Flour Milling and Baking Res. Assoc., Chorleywood, Engl.
SO U. S. NTIS, AD Rep. (1974), AD-A018447, 72 pp. Avail.: NTIS From: Gov. Rep. Announce. Index (U. S.) 1976, 76(3), 25
CODEN: XADRCH
DT Report
LA English
AB Improved methods for the prepn. of **hydroxyethyl starch** (I) [**9005-27-0**] are described, and the material produced by these new technique is shown to be an effective cryoprotective agent. Improvement in the accuracy of measurement of the level of substitution of **hydroxyethyl starch**, and for measuring the concn. of solns. of the polymer, are detailed. As a prerequisite to the complete structural characterization of I by hydrolysis and gas-chromatog. sepn. of the constituent substituted glucose monomers, samples of 2-O-(2-hydroxyethyl)-D-glucose and of 3-O-(2-hydroxyethyl)-D-glucose were prepd. by a new synthetic route. Prepn. of 6-O-(2-hydroxyethyl)-D-glucose proved to be difficult. The level of substitution and the viscosity of I have a significant effect on the cryoprotective potential of the material. The post-thaw treatment of blood-I mixts. is briefly considered. Although the method using reversible agglomeration appears to have insufficient benefit for practical use, simple washing procedures using normal **saline** yield a high-quality product.

L23 ANSWER 101 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1975:508576 CAPLUS
DN 83:108576
TI Plasma histamine levels in man following **infusion** of hydroxyethyl starch. Allergic or anaphylactoid reactions following administration of a new plasma substitute
AU Lorenz, W.; Doenicke, A.; Freund, M.; Schmal, A.; Dormann, P.; Praetorius, B.; Schuerk-Bulich, M.
CS Abt. Exp. Chir. Pathol. Biochem., Univ. Marburg, Marburg, Ger.
SO Anaesthesist (1975), 24(5), 228-30
CODEN: ANATAE
DT Journal
LA German
AB Rapid **infusion** of the plasma substitute **hydroxyethyl starch** (**Plasmasteril**) [**9005-27-0**] (about 6 ml/kg body wt. of a soln. contg. 6 g/100 ml isotonic **NaCl**) into volunteers caused no histamine (I) [51-45-6] release into the plasma and no clin. symptoms of allergic or anaphylactoid reaction.

L23 ANSWER 105 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1974:499553 CAPLUS
DN 81:99553
TI Blood volume **replacement** by hydroxyethyl starch or dextran 60
AU Hoelscher, B.
CS Klin. Steglitz, Freie Univ. Berlin, Berlin, Ger.
SO Infusionstherapie (1974), 1(4), 281-5
CODEN: IFTHA3
DT Journal
LA German
AB Isovolemic hemodiln. by 6% **hydroxyethylstarch** [**9005-27-0**] or 6% dextran 60 [9004-54-0] in **saline** down to a hematocrit. of 20% was survived by rats without significant deviations of blood vol. from initial values and without erythropoietic disorders. Likewise, all rats survived following hemorrhagic hypotension lasting 60 mins and

subsequent blood **replacement** by equal volumes of **hydroxyethylstarch** or dextran 60. Kidneys and livers showed no pathol. changes. Thus, **hydroxyethylstarch** is as efficacious a plasma substitute as dextran 60 in hemorrhagic shock and hemodiln. for treatment of hyperviscosity syndromes.

L23 ANSWER 123 OF 135 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 1995-036128 [05] WPIDS
CR 1996-321575 [32]; 1998-076406 [07]; 1999-609622 [52]; 2000-504958 [38]; 2001-327117 [29]; 2002-088755 [73]
DNN N1995-028510 DNC C1995-016174
TI Aq. blood substitute soln. contg. oncotic agent - used e.g. in cryo-preservation of organs or donor subjects or as plasma extender.
DC B04 D22 P34
IN SEGALL, P E; STERNBERG, H; WAITZ, H D; SEGALL, J M
PA (BIOT-N) BIOTIME INC
CYC 48
PI WO 9428950 A1 19941222 (199505)* EN 64p
RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE
W: AT AU BB BG BR BY CA CH CN CZ DE DK ES FI GB HU JP KP KR KZ LK LU LV MG MN MW NL NO NZ PL PT RO RU SD SE SK UA UZ VN
AU 9470525 A 19950103 (199521)
US 5407428 A 19950418 (199521) 12p
BR 9406742 A 19960312 (199616)
EP 701455 A1 19960320 (199616) EN
R: AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE
US 5571801 A 19961105 (199650) 19p
JP 08511265 W 19961126 (199708) 48p
US 5613944 A 19970325 (199718) 18p
AU 681675 B 19970904 (199744)
CN 1127476 A 19960724 (199749)
US 5698536 A 19971216 (199805) 20p
US 5723281 A 19980303 (199816) 19p
US 5733894 A 19980331 (199820) 20p
US 5747071 A 19980505 (199825)
RU 2142282 C1 19991210 (200043)
US 6110504 A 20000829 (200043)
EP 701455 B1 20010314 (200116) EN
R: AT BE CH DE DK ES FR GB GR IE IT LI LU NL PT SE
DE 69426879 E 20010419 (200129)
KR 267604 B1 20001101 (200139)
ES 2157260 T3 20010816 (200156)
ADT WO 9428950 A1 WO 1994-US6279 19940603; AU 9470525 A AU 1994-70525 19940603; US 5407428 A US 1993-71533 19930604; BR 9406742 A BR 1994-6742 19940603, WO 1994-US6279 19940603; EP 701455 A1 EP 1994-919352 19940603, WO 1994-US6279 19940603; US 5571801 A CIP of US 1993-71533 19930604, Cont of US 1993-133527 19931007, US 1995-446520 19950522; JP 08511265 W WO 1994-US6279 19940603, JP 1995-501978 19940603; US 5613944 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, US 1995-462270 19950605; AU 681675 B AU 1994-70525 19940603; CN 1127476 A CN 1994-192801 19940603; US 5698536 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, US 1995-463296 19950605; US 5723281 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, US 1995-471396 19950606; US 5733894 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, US 1995-465252 19950605; US 5747071 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, US 1995-462650 19950605; RU 2142282 C1 WO 1994-US6279 19940603, RU 1996-101967 19940603; US 6110504 A CIP of US 1993-71533 19930604, Div ex US 1993-133527 19931007, Cont of US 1995-462650 19950605, US 1998-24884 19980217; EP 701455 B1 EP 1994-919352 19940603, WO 1994-US6279 19940603; DE 69426879 E DE 1994-626879 19940603, EP 1994-919352 19940603, WO 1994-US6279 19940603; KR 267604 B1 WO 1994-US6279 19940603, KR 1995-705531 19951204; ES 2157260 T3 EP 1994-919352 19940603

FDT AU 9470525 A Based on WO 9428950; BR 9406742 A Based on WO 9428950; EP 701455 A1 Based on WO 9428950; US 5571801 A CIP of US 5407428; JP 08511265 W Based on WO 9428950; US 5613944 A CIP of US 5407428; AU 681675 B Previous Publ. AU 9470525, Based on WO 9428950; US 5698536 A CIP of US 5407428; US 5723281 A CIP of US 5407428; US 5733894 A CIP of US 5407428; US 5747071 A CIP of US 5407428; RU 2142282 C1 Based on WO 9428950; US 6110504 A CIP of US 5407428, Cont of US 5747071; EP 701455 B1 Based on WO 9428950; DE 69426879 E Based on EP 701455, Based on WO 9428950; ES 2157260 T3 Based on EP 701455

PRAI US 1993-133527 19931007; US 1993-71533 19930604; US 1995-446520 19950522; US 1995-462270 19950605; US 1995-463296 19950605; US 1995-471396 19950606; US 1995-465252 19950605; US 1995-462650 19950605; US 1998-24884 19980217

AB WO 9428950 A UPAB: 20020221

An aq. based blood substitute soln. (I) includes an oncotic agent (II), does not contain more than 5mM of K+ and does include a conventional biological buffer (CBB). (I) pref. further contains Na+ and an organic carboxylic acid (or its salt or ester). A prefd. (I) i.e. (I) comprises 0-5 mMK+; Na+, Mg2+, Ca2+ and Ce- in physiological or sub-physiological concns; a macromolecular (II); an organic carboxylic acid (or its salt or ester); and a sugar. Also claimed are methods for: (A) maintaining a partially or substantially completed ensangrinated subject alive under hypothermic conditions, by substituting a soln. contg. macromolecular (II) and Ca2+ but free of CBB; (B) maintaining the biological integrity of a subject (or cells, tissues or organs from the subject), by prefusing with soln (I); (C) providing a heat-sterilised blood substitute, by: placing a soln. contg. 0-5 mM K+, (sub)physiological levels of Na+, Mg2+, Ca2+ and Cl-, a macromolecular (II) a carboxylic acid (or its salt or ester) and a sugar in a heat-sterilisable container, then raising the temp. of the soln. under press. for sufficient time to kill (almost) all bacteria and inactivate (almost) all viruses in the soln; and (D) perfusing a subject prepared for circulatory perfusion, by: reducing the subject's temp. below normal, circulating into the subject a soln. contg. 0.5mM K+, (sub)physiological concns. of Na+, Mg2+, Ca2+ and Cl-, macromolecular (II), a carboxylic acid (or its salt), a sugar and NaHCO3; and subsequently returning blood to the subject.

USE - The plasma-like solns. are useful for keeping an ecsanguinated subject alive at or below normal temp. (e.g. at -2 to +37/38 deg. C); as plasma extender at normal body temp; for maintaining the life or biological integrity of a perfused subject and/or organs during and after exposure to profound hypothermic conditions; for maintaining a euthermic subject in a pressurised environment with increased I2 concn. (up to 100%) for sufficient time to restore the blood components; or for perfusing a chilling a mammal to temps. well below normal. Applicn. is generally in preservation of organs (e.g. hearts) for transplant or preservation of brain-dead donor subjects; or in surgery at low temp.

ADVANTAGE - The solns. are effective blood substitutes which can be used in all phases of plasma extension, blood substitution (from initial washout to full substitution) and low temp. maintenance, avoiding the need for multiple-solns. Subjects can be maintained in profound hypothermia for long periods (e.g. more than 1 hr) without lasting harmful effects on recovery. The sub-physiological amt. of K+ in (I) reduces the risk of hyperkalaemia-induced cardiac insufficiency after blood **transfusion**. The absence of CBB (possible because the carboxylic acid or deriv. has a baffering effect) allows (I) to be sterilised without degradation of components.

Dwg.0/0

L23 ANSWER 132 OF 135 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD

AN 1987-108604 [15] WPIDS

CR 1989-208031 [29]

DNC C1987-045136

TI Hydroxyethyl starch perfusate for organ preservation - gives improved

long-term preservation.
DC A96 D22
IN BELZER, F O; SOUTHARD, J H; BELZER, F
PA (WISC) WISCONSIN ALUMNI RES FOUND
CYC 13
PI WO 8701940 A 19870409 (198715)* EN 15p
RW: AT BE CH DE FR GB IT LU NL SE
W: AU DE GB JP NL
AU 8664044 A 19870424 (198728)
EP 237567 A 19870923 (198738) EN
R: DE FR GB IT NL
US 4798824 A 19890117 (198906) 6p
US 4873230 A 19891010 (198950) 5p
EP 237567 B1 19930825 (199334) EN 10p
R: DE FR GB IT NL
DE 3688936 G 19930930 (199340)
EP 237567 A4 19891108 (199508)
ADT WO 8701940 A WO 1986-US2022 19860925; EP 237567 A EP 1986-906173 19860925; US 4798824 A US 1985-784435 19851003; US 4873230 A US 1988-225102 19880727; EP 237567 B1 EP 1986-906173 19860925, WO 1986-US2022 19860925; DE 3688936 G DE 1986-3688936 19860925, EP 1986-906173 19860925, WO 1986-US2022 19860925; EP 237567 A4 EP 1986-906173
FDT EP 237567 B1 Based on WO 8701940; DE 3688936 G Based on EP 237567, Based on WO 8701940
PRAI US 1985-784435 19851003; US 1987-139530 19871229; US 1988-225102 19880727
AB WO 8701940 A UPAB: 19950306
A new perfusate for the preservation of organic for implantation in an animal comprises: 5% **hydroxyethyl starch** (HEL); 25 mM KH2PO4; 3mM glutathione; 5mM adenosine; 10mM glucose; 10mM HEPES butter; 5 mM magnesium gluconate; 1.5 mM CaCl2; 105 mM sodium gluconate; 200,000 units penicillin; 40 Units insulin; 16 mg Dexamethasone; 12 mg Phenol Red; pH 7.4-7.5; HEL is free of ethylene glycol; ethylene chlorohydrin; **sodium chloride** and acetone; and the perfurate has an osmolality of 320 MOSm/l. HEL pref. has ave. mol. wt. 150,000-350,000 esp. 200,000 Daltons and deg. of substitution 0.4-0.7.
USE/ADVANTAGE - The perfusate is used to preserve Kidneys. The presence of HES in place of human serum albumin (HSA) extends the preservation time; also, the other agents have been shown to be beneficial to the Kidneys during preservation. Chloride is **replaced** with gluconate to suppress hypolthermic induced cell swelling. Adenosine and PO4 can stimulate ATP synthesis. Glutathione is added as antioxidant K+ is added to suppress loss of hypothermie. Extended clinical organ preservation is achieved, and the use of a synthetic colloid minimises the variation resulting from perfusates prepd. from naturally derived materials.
Dwg.0/3
Dwg.0/3

=> d 1 6 7 8 10 22 25 30 33 34 35 49 51 53 61 62 66 70 73 94 97 104 106 111 116 127 bib ab

L23 ANSWER 1 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 2002:41206 CAPLUS
TI Effects of resuscitation with hydroxyethyl starch (HES) on pulmonary hemodynamics and lung lymph balance in hemorrhagic sheep; comparative study of low and high molecular HES
AU Kaneki, Toshimichi; Koizumi, Tomonobu; Yamamoto, Hiroshi; Fujimoto, Keisaku; Kubo, Keishi; Shibamoto, Toshishige
CS First Department of Internal Medicine, Shinshu University School of Medicine, Shinshu, 390-8621, Japan
SO Resuscitation (2002), 52(1), 101-108

CODEN: RSUSBS; ISSN: 0300-9572
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
AB Synthetic starch soln., such as **hydroxyethyl starch** (HES), has been used clin. to restore cardiovascular vol. in patients with hemorrhagic shock. Several HES solns. are available clin., but each HES has a broad range of mol. mass fractions. We performed comparative studies of extremely low and high mol. HES to evaluate the effects of these HES solns. on lung lymph filtration during resuscitation. We prepd. awake sheep with vascular monitoring and lung lymph fistulas. After baseline measurements, animals were bled from an arterial line to maintain shock. After 2 h of hemorrhagic period, the following three solns. were infused over 1 h, resp. Expt. (Exp) 1 (n=6); low mol. HES; (mol. wt. (MW) 70000, substitution fractions 0.5-0.55, Exp 2 (n=6); high mol. HES; (MW450000, substitution fractions 0.65). Exp 3 (n=6); normal **saline** (NS). The quantity of soln. was detd. as the same vol. of blood lost to induce hemorrhagic situation in each animal (Exp 1; 940.+-.36 mL, Exp 2; 910.+-.50 mL, Exp 3; 920.+-.42 mL). Both low and high mol. HES could restore the systemic artery pressure and cardiac output, and significantly increased pulmonary microvascular pressure equally, which were significantly higher than those in normal **saline**. However, actual oncotic pressure gradient (plasma-lymph) rose transiently during low mol. HES **infusion**, while high mol. HES widened the oncotic pressure gradient even after the cessation of the **infusion**. Lung lymph flow during and after resuscitation with low mol. HES and NS rose significantly from the pre-shock baseline. There was no significant difference in increased lung lymph flow between low mol. HES and NS. However, lung lymph flow after high mol. HES was significantly less than that after low mol. HES. These data suggest that low mol. HES is as useful a plasma substitute as high mol. HES, but has a possibility to increase lung lymph filtration during the early phase of resuscitation.
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 6 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 2001:448254 CAPLUS
TI The effects of hydroxyethyl starches of varying molecular weights on platelet function
AU Franz, Alexander; Braunlich, Peter; Gamsjager, Thomas; Felfernig, Michael; Gustorff, Burkhard; Kozek-Langenecker, Sibylle A.
CS Department of Anesthesiology and Intensive Care B, School of Medicine, University of Vienna, Vienna, 1090, Austria
SO Anesthesia & Analgesia (Baltimore, MD, United States) (2001), 92(6), 1402-1407
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
AB We evaluated the effect of various **hydroxyethyl starch** (HES) solns. on platelet function. Blood was obtained before and after the **IV infusion** (10 mL/kg) of **saline** (n = 10), HES 70/0.5-0.55 (mol. wt. in kD/degree of substitution; n = 10), HES 130/0.38-0.45 (n = 10), HES 200/0.6-0.66 (n = 10), or HES 450/0.7-0.8 (n = 10) in otherwise healthy patients scheduled for elective surgery. Collagen and epinephrine were used as agonists for assessment of platelet function analyzer closure times. Flow cytometry was used to assess agonist-induced expression of activated glycoprotein IIb/IIIa complex and P-selectin. **Infusion** of HES 450/0.7-0.8, HES 200/0.6-0.66, and HES 70/0.5-0.55 prolonged closure times and reduced glycoprotein IIb/IIIa expression, whereas **saline** and HES 130/0.38-0.45 had no significant effect on platelet variables. P selectin expression was not

affected by any soln. tested. In vitro expts. demonstrated a less inhibiting effect of HES 130/0.38-0.45 on closure times when compared with other HES solns. This study shows that HES 450/0.7-0.8, HES 200/0.6-0.66, and HES 70/0.5-0.55 inhibit platelet function by reducing the availability of the functional receptor for fibrinogen on the platelet surface. Our data indicate that fluid resuscitation with HES 130/0.38-0.45 may reduce the risk of bleeding assocd. with synthetic colloids of higher mol. wt. and degree of substitution.

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 7 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 2001:335847 CAPLUS
DN 136:90812
TI Impact of carrier solutions on pharmacokinetics of intraperitoneal chemotherapy
AU Pestieau, Sophie R.; Schnake, Klaus J.; Stuart, O. Anthony; Sugarbaker, Paul H.
CS Washington Hospital Center, The Washington Cancer Institute, Washington, DC, 20010, USA
SO Cancer Chemotherapy and Pharmacology (2001), 47(3), 269-276
CODEN: CCPHDZ; ISSN: 0344-5704
PB Springer-Verlag
DT Journal
LA English
AB In the treatment of gastrointestinal malignancies with dissemination to peritoneal surfaces the principal advantage of i.p. chemotherapy over i.v. chemotherapy is the high drug concn. achieved locally with low systemic toxicity. This advantage can be optimized by maintaining a large area of contact between the chemotherapy soln. and the surfaces within the abdomen and pelvis over a prolonged time period. Using a rat model we compared the pharmacokinetics of two drugs infused i.p., 5-fluorouracil and gemcitabine, in five different carrier solns. A total of 120 Sprague Dawley rats were randomized into groups according to the carrier soln. and the drug administered. Rats were given a single dose of i.p. 5-fluorouracil (20 mg/kg) or gemcitabine (12.5 mg/kg) in 0.1 mL/g body wt. of each carrier soln. The carrier solns. used varied in their tonicity (0.3%, 0.9% or 3% **sodium chloride**), or were isotonic and varied in mol. wt. (0.9% **sodium chloride**, 4% icodextrin and 6% **hetastarch**). With the hypotonic, isotonic and hypertonic **sodium chloride** solns., only 5-fluorouracil was used. Each group was further randomized according to the i.p. dwell period (1, 3 or 6 h). At the end of the procedure the rats were killed, the peritoneal fluid was withdrawn completely and the blood was sampled using a standardized protocol. The vol. of the peritoneal fluid was recorded, and the drug concns. in the peritoneal fluid and plasma were detd. by high-performance liq. chromatog. Measurements of peritoneal fluid vol. showed a more rapid clearance of hypotonic and isotonic **sodium chloride** solns. from the peritoneal cavity as compared to hypertonic **sodium chloride** and high mol. wt. solns. When comparing the remaining i.p. vols. at 6 h, the differences were statistically significant for both 5-fluorouracil and gemcitabine when **hetastarch** ($P < 0.0001$ and $P = 0.0004$) and icodextrin ($P = 0.002$ and 0.008) were compared with isotonic **sodium chloride** soln. Similarly, there was a significant difference in the vols. recorded at 6 h when hypotonic ($P < 0.0001$) and isotonic **sodium chloride** solns. ($P = 0.0002$) were compared with hypertonic **sodium chloride** soln. The concns. of chemotherapy in the different carrier solns. varied little. The total amt. of drug in the peritoneal cavity decreased with all solns. and more quickly with 5-fluorouracil than with gemcitabine. There was a significant difference in the total i.p. 5-fluorouracil between hypotonic and isotonic **sodium chloride** solns.

at 1 h (P = 0.0003) and 3 h (P = 0.0043), as well as between the isotonic and hypertonic **sodium chloride** solns. at 1 h (P = 0.03) and 3 h (P < 0.0001). Similarly, there was a significant difference in the total peritoneal gemcitabine at 6 h between icodextrin and isotonic **sodium chloride** soln. (P = 0.01) and between **hetastarch** and isotonic **sodium chloride** soln. (P = 0.05). There were no significant differences in plasma 5-fluorouracil and plasma gemcitabine concns. obtained with the five solns. These findings show that the clearance of 5-fluorouracil and gemcitabine from the peritoneal cavity can be significantly modified by varying the tonicity or the mol. wt. of the carrier soln. Peritoneal fluid clearance was slower with hypertonic **sodium chloride** and high mol. wt. solns. and this resulted in a reduced clearance of chemotherapy. By using a high mol. wt. carrier soln. the exposure of i.p. cancer cells to gemcitabine was prolonged and drug availability at the peritoneal surface was increased. Similarly, by using a hypertonic carrier soln. the exposure to 5-fluorouracil was prolonged and drug availability at the peritoneal surface was also increased.

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 8 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 2001:219327 CAPLUS
DN 135:190334
TI The effect of treatment with albumin, **hetastarch**, or hypertonic **saline** on neurological status and brain edema in a rat model of closed head trauma combined with uncontrolled hemorrhage and concurrent resuscitation in rats
AU Eilig, Israel; Rachinsky, Maxim; Artru, Alan A.; Alonchin, Andrei; Kapuler, Vadim; Tarnapolski, Alexander; Shapira, Yoram
CS Division of Anesthesiology, Soroka Medical Center, Ben-Gurion University of the Negev, Beer Sheva, Israel
SO Anesthesia & Analgesia (Baltimore, MD, United States) (2001), 92(3), 669-675
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
AB It was previously found that in rats subjected to closed head trauma (CHT) plus uncontrolled hemorrhage, giving 0.3 mL of 0.9% **saline** per 0.1 mL of blood lost did not restore mean arterial blood pressure (MAP) or improve neurol. severity score (NSS). In CHT without hemorrhage, giving 20% albumin or 10% **hetastarch** improved NSS. It was hypothesized that these latter treatments would also improve NSS after CHT plus uncontrolled hemorrhage. Rats were randomly assigned to one of seven groups. Exptl. conditions were: CHT (yes or no), uncontrolled hemorrhage (yes or no), and fluid given to **replace** blood loss (none; 10% **hetastarch**, 20% albumin, or 3% **saline** [0.1 mL per 0.1 mL of blood lost]; or 0.9% **saline** [0.3 mL per 0.1 mL of blood lost]). NSS (0-25 scale where 0 = no impairment) was detd. after 1, 4, and 24 h, and brain water content was detd. 24 h after CHT. NSS after 24 h was 11 when no fluid was given; 16 with 10% **hetastarch**; 14 with 20% albumin; 12 with 3% **saline**; and 13 with 0.9% **saline** given (not significant). In addn., brain water content and MAP did not differ among the groups receiving CHT with or without uncontrolled hemorrhage. In this model of CHT plus uncontrolled hemorrhage in rats, giving 10% **hetastarch**, 20% albumin, 3% **saline**, or 0.9% **saline** failed to improve NSS, brain water content, or MAP.

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 10 OF 135 CAPLUS COPYRIGHT 2002 ACS

AN 2000:727887 CAPLUS
DN 134:305107
TI The effect of hydroxyethyl starch 200 kD on platelet function
AU Stogermuller, Birgit; Stark, Josef; Willschke, Harald; Felfernig, Michael; Hoerauf, Klaus; Kozek-Langenecker, Sibylle A.
CS Departments of Anesthesiology and Intensive Care B, School of Medicine, University of Vienna, Vienna, 1090, Austria
SO Anesthesia & Analgesia (Baltimore) (2000), 91(4), 823-827
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
AB We evaluated the effects of **hydroxyethyl starch** with a mol. wt. of 200 kD (HES 200 kD) on platelets to gain insight into the potential mechanisms involved in the anticoagulant effects of HES 200 kD. Blood was obtained before and after an **IV infusion** (10 mL/kg) of either **saline** (n = 15) or HES 200 kD (n = 15) in otherwise healthy patients scheduled for minor elective surgery. Flow cytometry was used to assess the expression of glycoprotein (GP) IIb-IIIa, GP Ib, and P-selectin on agonist-activated platelets. Overall platelet function was evaluated by assessing thromboelastog. max. amplitude (MA) in celite-activated blood and platelet function analyzer-closure times by using collagen/ADP cartridges. **Saline infusion** had no effects on platelet variables, whereas HES 200 kD reduced GP IIb-IIIa expression and MA and prolonged platelet function analyzer-closure times, without affecting the expression of P-selectin and GP Ib. In vitro expts. extended these observations by a concn.-related inhibiting effect of HES 200 kD on GP IIb-IIIa expression. This study demonstrates that cellular abnormalities with decreased availability of platelet GP IIb-IIIa are involved in the anticoagulant effects of HES 200 kD.
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 22 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1999:642806 CAPLUS
DN 131:237910
TI Comparison of pentastarch and Hartmann's solution for volume preloading in spinal anesthesia for elective Cesarean section
AU French, G. W. G.; White, J. B.; Howell, S. J.; Popat, M.
CS Department of Anaesthetics, Northampton District General Hospital, Northampton, NN1 5BD, UK
SO Br. J. Anaesth. (1999), 83(3), 475-477
CODEN: BJANAD; ISSN: 0007-0912
PB Oxford University Press
DT Journal
LA English
AB We studied 160 patients undergoing elective Cesarean section under spinal anesthesia who received a preloading vol. of 15 mL kg-1 of 10% **pentastarch** in 0.9% **saline**, or Hartmann's soln., in a prospective, randomized, double-blind study. We compared the incidence of spinal-induced hypotension in each group. Hypotension was defined as a decrease in systolic arterial pressure to less than 70% of baseline values or .ltoreq.90 mm Hg, whichever was the greater. The groups were comparable in phys. characteristics and there was no serious morbidity. Fetal outcome was similar in both groups. Significantly more patients in the Hartmann's group (n=38, 47.5%) developed hypotension than in the **pentastarch** group (n=10, 12.5%) (P<0.0001). Linear regression anal. showed that the only significant variable was type of fluid used. Blood glucose concns. were not related to the presence of hypotension. We conclude that starches may be suitable for preloading in Cesarean section under spinal anesthesia and provide an alternative to the aggressive use of vasoconstrictors.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 25 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1999:447446 CAPLUS
DN 131:134472
TI Effects of hydroxyethyl starch **infusion** on lung fluid balance in hemorrhagic sheep
AU Kaneki, Toshimichi
CS Sch. Med., Shinshu Univ., Matsumoto, 390-8621, Japan
SO Shinshu Igaku Zasshi (1999), 47(2), 119-128
CODEN: SIZAA7; ISSN: 0037-3826
PB Shinshu Igakkai
DT Journal
LA Japanese
AB The present study was designed to investigate the effect of relatively low mol. **hydroxyethyl starch** (HES:Mw 70,000) on pulmonary hemodynamics and lymph flow balance during resuscitation from hemorrhagic hypotension employing instrumented and unanesthetized sheep with chronic lung lymph fistula. After baseline measurements for 2 h, animals were bled from a catheter placed in the artery to maintain systemic hypotension of 60-65 mmHg. After establishment of hemorrhagic hypotension, HES (HES group: n = 6) or normal **saline** (NS group: n = 5) was infused for one hour. The vol. of infused soln. was equal to the vol. of shed blood in each animal. HES **infusion** restored systemic arterial pressure much more rapidly than NS. HES also produced significant increases in pulmonary arterial and left atrial pressures, and cardiac output. These parameters at the end of HES **infusion** were significantly higher than those with NS. The actual oncotic pressure gradient (plasma-lymph) was transiently widened during HES **infusion**. Both HES and NS **infusion** produced an increase in lung lymph flow, but these increased levels did not show significant differences (4.8.+-.1.6 mL/15 min with HES vs. 3.8.+-.1.2 mL/15 min with NS). In conclusion, low mol. HES is a useful plasma substitute as it produced a transient beneficial effect on the oncotic gradient in pulmonary hemodynamics during the resuscitation from hemorrhage. HES soln. also did not cause extravascular water retention that might induce respiratory disturbance at the early stage of resuscitation from hemorrhagic hypovolemia.

L23 ANSWER 30 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1998:547579 CAPLUS
DN 129:310746
TI Effects of hypertonic **saline hydroxyethyl starch** solution and mannitol in patients with increased intracranial pressure after stroke
AU Schwarz, Stefan; Schwab, Stefan; Bertram, Markus; Aschoff, Alfred; Hacke, Werner
CS University of Heidelberg, Heidelberg, 69120, Germany
SO Stroke (1998), 29(8), 1550-1555
CODEN: SJCCA7; ISSN: 0039-2499
PB Williams & Wilkins
DT Journal
LA English
AB The purpose of this study was to prospectively evaluate a protocol with hypertonic **saline hydroxyethyl starch** (HS-HES) and mannitol in stroke patients with increased intracranial pressure (ICP). We studied 30 episodes of ICP crisis in 9 patients. ICP crisis was defined as (1) a rise of ICP of more than 25 mm Hg (n=22), or (2) pupillary abnormality (n=3), or (3) a combination of both (n=5). Baseline treatment was performed according to a standardized protocol. For initial treatment, the patients were randomly assigned to either **infusion** of 100 mL HS-HES or 40 g mannitol over 15 min. For repeated treatments the 2 substances were alternated. ICP, blood

pressure, and cerebral perfusion pressure (CPP) were monitored over 4 h. Blood gases, hematocrit, blood osmolarity, and sodium were measured before and 15 and 60 min after the start of **infusion**. Treatment was regarded as effective if ICP decreased >10% below baseline value or if the pupillary reaction had normalized. Treatment was effective in all 16 HS-HES-treated and in 10 of 14 mannitol-treated episodes. ICP decreased from baseline values in both groups, P<0.01. The max. ICP decrease was 11.4 mm Hg (after 25 min) in the HS-HES-treated group and 6.4 mm Hg (after 45 min) in the mannitol-treated group. There was no const. effect on CPP in the HS-HES-treated group, whereas CPP rose significantly in the mannitol-treated group. Blood osmolarity rose by 6.2 mmol/L in the mannitol-treated group and by 10.5 mmol/L in the HS-HES-treated group; sodium fell by 3.2 mmol/L in the mannitol and rose by 4.1 mmol/L in the HS-HES-treated group. **Infusion** of 40 g mannitol and 100 mL HS-HES decreases increased ICP after stroke. The max. effect occurs after the end of **infusion** and is visible over 4 h. HS-HES seems to lower ICP more effectively but does not increase CPP as much as does mannitol.

L23 ANSWER 33 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1997:472017 CAPLUS
DN 127:130702
TI Effect of progressive hemodilution with hydroxyethyl starch, gelatin and albumin on blood coagulation
AU Egli, G. A.; Zollinger, A.; Seifert, B.; Popovic, D.; Pasch, T.; Spahn, D. R.
CS Institute of Anaesthesiology, University of Zurich, Zurich, CH-8091, Switz.
SO Br. J. Anaesth. (1997), 78(6), 684-689
CODEN: BJANAD; ISSN: 0007-0912
PB Professional and Scientific Publications
DT Journal
LA English
AB We have compared the effects of progressive (30% and 60%) in vitro hemodilution with **hydroxyethyl starch** (HES), gelatin (GEL) and albumin (ALB) with hemodilution using 0.9% **saline** in 96 patients by thrombelastog. Hemodilution with HES, GEL and ALB significantly (P<0.05) compromised coagulation time (k), angle .alpha. and maximal amplitude (MA), with HES having the most neg. effect at 30% and 60% hemodilution (P<0.05). Hemodilution with **saline** significantly affected all variables of blood coagulation and clot lysis measured by thrombelastog., resulting in an increased coagulability at 30% hemodilution. To specifically assess the intrinsic effect of plasma expander mols. on blood coagulation and clot lysis, we analyzed the difference between **saline** dild. blood (same degree of hemodilution) and plasma expander dild. blood. Prolongation of reaction time (r) was found for HES at 30% and 60% hemodilution and for ALB at 60% hemodilution and an increase in clot lysis by HES, GEL and ALB became evident. We conclude that HES, GEL and ALB compromised blood coagulation, while the max. effect was found with HES.

L23 ANSWER 34 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1997:325924 CAPLUS
DN 127:543
TI Oncotic, hemodilutional, and hemostatic effects of isotonic **saline** and **hydroxyethyl starch** solutions in clinically normal ponies
AU Jones, Peyton A.; Tomasic, Michael; Gentry, Patricia A.
CS Department of Clinical Studies, School of Veterinary Medicine, New Bolton Center, University of Pennsylvania, Kennet Square, PA, 19348-1692, USA
SO Am. J. Vet. Res. (1997), 58(5), 541-548
CODEN: AJVRAH; ISSN: 0002-9645
PB American Veterinary Medical Association

DT Journal
LA English
AB The oncotic, hemodilutional, and hemostatic effects of i.v. infusions of a large vol. of isotonic **saline** soln. and 2 doses of 6% **hydroxyethyl starch** (HES) in clin. normal ponies were evaluated in 12 adult ponies. Ponies were assigned to 3 treatment groups and received the following i.v. infusions: 80 mL of 0.9% **sodium chloride**/kg; 10 mL of 6% HES (in 0.9% **sodium chloride**)/kg; or 20 mL of 6% HES (in 0.9% **sodium chloride**)/kg. Blood samples were collected for detn. of colloid oncotic pressure (COP), PCV, plasma total protein concn., platelet count, von Willebrand factor antigen (vWf:Ag) activity, fibrinogen concn., prothrombin time, activated partial thromboplastin time (APTT), and factor VIII coagulant (FVIII:C) activity. A rocket immunoelectrophoretic procedure was used for detn. of vWf:Ag activity. A modification of the APTT assay was used for detn. of FVIII:C activity. Cutaneous bleeding time was detd., using a template method. Mean COP was persistently increased over baseline values in the face of hemodilution in HES-treated ponies. Prothrombin time, APTT, and fibrinogen concns. decreased after infusions and vWf:Ag and FVIII:C activities were decreased in dose-dependent manner in HES-treated ponies. Though cutaneous bleeding time was not significantly affected in ponies of any group, a trend toward prolongation of bleeding time was evident in ponies receiving 20 mL of HES/kg. This trend appeared to be assocd. with marked decrement in vWf:Ag activity at this dosage. **Infusion** of HES in clin. normal ponies increases COP, and exerts dose-dependent hemodilutional effects and dose-dependent effects on specific hemostatic variables. Thus, HES may be useful for resuscitative fluid treatment of horses.

L23 ANSWER 35 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1996:654935 CAPLUS
DN 125:292664
TI Evaluation of clinical efficacy and safety of hydroxyethyl starch
AU Rani, P. Usha; Naidu, M. U. R.; Rao, Manimala; Murthy, V. S. S. N.; Kumar, T. Ramesh; Shobha, J. C.; Kumar, T. Vijay
CS Department Clinical Pharmacology and Therapeutics, Nizam's Institute Medical Sciences, Hyderabad, 500 082, India
SO Indian J. Pharmacol. (1996), 28(3), 181-184
CODEN: INJPD2; ISSN: 0253-7613
DT Journal
LA English
AB **Hydroxyethyl starch** (HES) 6% has been shown to improve hypovolemia, with min. side effects and long duration of action. Thirty patients showing signs of hypovolemia post-operatively, in the form of tachycardia and hypotension received 500 mL of 6% HES i.v. over 30-60 min. Administration of HES, significantly improved hypovolemia in all the patients. Within 30 min after **infusion**, systolic blood pressure (SBP) increased from 85 to 98 mm Hg. Heart rate decreased from 124 beats per min (bpm) to 99 bpm and central venous pressure (CVP) increased from 1 to 3.5 cm of **saline**, at one hour post HES administration. This improvement persisted till the end of sixth hour observation period. All patients tolerated HES well without any side effects and hematol. or biochem. abnormalities.

L23 ANSWER 49 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1993:94072 CAPLUS
DN 118:94072
TI Hydroxyethyl starch 200/0.5 reduces infarct volume after embolic stroke in rats
AU Perez-Trepichio, Alejandro D.; Furlan, Anthony J.; Little, John R.; Jones, Stephen C.
CS Dep. Neurosci., Cleveland Clin. Found., Cleveland, OH, 44195-5286, USA
SO Stroke (Dallas) (1992), 23(12), 1782-91

CODEN: SJCCA7; ISSN: 0039-2499
DT Journal
LA English
AB Isovolumic hemodilution with **hydroxyethyl starch** 200/0.5 was evaluated in a rat model of focal cerebral ischemia. This compd. is devoid the unfavorable viscosity and erythrocyte aggregation abnormalities of low mol. wt. dextran during administration over a period of several days. Sprague-Dawley rats, anesthetized with 0.5-1% halothane and 70% N2O, were subjected to silicon cylinder (treated and control groups) or sham (sham group) embolization of the cerebral circulation. Thirty minutes after embolization, the treated group was infused with 11 mL/kg of 10% **hydroxyethyl starch** 200/0.5, and the control and sham groups were infused with **saline** for 1 h. In the treated group, 7.1 mL/kg of blood was withdrawn. After 24 h, the animals were reanesthetized, and cerebral blood flow was detd. with [14C]iodoantipyrine. Alternative brain slices were either incubated with 2,3,5-triphenyltetrazolium chloride for infarct vol. detn. or frozen for ischemic vol. and cerebral blood flow detn. using autoradiog. The hematocrit in the treated group was reduced from 46% to 35% at 1.5 h. Cortical blood flow was within the normal range of 115-185 mL/min/100 g, except for the ischemic cortex in the embolized groups, treated and control. The ischemic and infarct vol. of the treated group was reduced by 74% and 89%, resp., from the control group. The treated and sham ischemic and infarct vols. were not statistically different. These data suggest that **hydroxyethyl starch** 200/0.5 could be an effective treatment for ischemic stroke when administered early, because it reduces infarct and ischemic vols. from control values to levels indistinguishable from those of the sham group.

L23 ANSWER 51 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1992:645254 CAPLUS
DN 117:245254
TI Evaluation of hemostatic analytes after use of hypertonic **saline** solution combined with colloids for resuscitation of dogs with hypovolemia
AU Zoran, Debra L.; Jergens, Albert E.; Riedesel, Dean H.; Johnson, Gary S.; Bailey, Theodore B.; Martin, Stephen D.
CS Coll. Vet. Med., Iowa State Univ., Ames, IA, 50011, USA
SO Am. J. Vet. Res. (1992), 53(10), 1791-6
CODEN: AJVRAH; ISSN: 0002-9645
DT Journal
LA English
AB The effects of hypertonic **saline** soln. (HTSS) combined with colloids on hemostatic analytes were studied in 15 dogs. The analytes evaluated included platelet counts, one-stage prothrombin time, activated partial thromboplastin time, von Willebrand's factor antigen (vWf:Ag), and buccal mucosa bleeding times. The dogs were anesthetized, and jugular phlebotomy was used to induce hypovolemia (mean arterial blood pressure = 50 mm of Hg). Treatment dogs (n = 12) were resuscitated by **infusion** (6 mL/kg of body wt.) of 1 of 3 solns.: HTSS combined with 6% dextran 70, 6% **hetastarch**, or 10% **pentastarch**. The control dogs (n = 3) were autotransfused. Hemostatic analytes were evaluated prior to induction of hypovolemia (baseline) and then after resuscitation (after 30 min of sustained hypovolemia) at 0.25, 0.5, 1, 6 and 24 h. All treatment dogs responded rapidly and dramatically to resuscitation with hypertonic soln. Clin. apparent hemostatic defects (epistasis, petechiae, hematoma) were not obsd. in any dog. All coagulation variables evaluated, with the exception of vWf:Ag, remained within ref. ranges over the 24-h period. The vWf:Ag values were not statistically different than values from control dogs, and actual values were only slightly lower than ref. ranges. Significant (P .ltoreq. 0.04) differences were detected for one-stage prothrombin time, but did not exceed ref. ranges. The results of this study suggested that small vol. HTSS/colloid solns. do not cause significant alterations in hemostatic

analytes and should be considered for initial treatment of hypovolemic or hemorrhagic shock.

L23 ANSWER 53 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1992:400516 CAPLUS
DN 117:516
TI A study of hemodynamic change and regional blood flows under hemodilution with hypotension. Hemodilution with 6% **hydroxyethyl starch saline** and controlled hypotension with trimetaphan (TMP) or trinitroglycerin (TNG)
AU Gotoh, Kinuko
CS Sch. Dent., Showa Univ., Japan
SO Shika Yakubutsu Ryoho (1991), 10(3), 229-39
CODEN: SYRYEJ; ISSN: 0288-1012
DT Journal
LA Japanese
AB Hemodynamic changes and regional blood flows responses to acute hemodilution and controlled hypotension were studied in 24 mongrel dogs anesthetized with halothane and paralyzed with pancuronium. Hemodilution was produced by 20 mL/kg removal of whole blood. The **infusion** of 6% **Hydroxyethyl starch saline** was started when 10 mL/kg of the whole blood was removed. The total **infusion** of 6% **Hydroxyethyl starch saline** was 20 mL/kg. Subsequently, hypotension was produced for 60 min by i.v. **infusion** of trimetaphan (TMP) or trinitroglycerin (TNG), at mean arterial pressure of 60 mmHG. The following results were obtained: In the hemodilution and TMP-induced hypotension group (the HD/TMP group), CI and renal cortical blood flow showed a significant decrease at 60 min of hypotension. The oxygen-carrying capacity showed a significant decrease and oxygen extn. showed a gradual increase when hypotension was induced. In the hemodilution and TNG-induced hypotension group (the HD/TNG group) MAP was not attained at the hypotension 60 mmHg (It was induced only 68 mmHG.). CI was increased during hypotension. Renal cortical blood flow showed a significant decrease at hypotension of 60 min, however it was only slightly more than the HD/TMP group. Oxygen-carrying capacity showed no changes when hypotension was induced. From these results, the HD/TMP group was superior to the HD/TNG group in the ability to control hypotension. And the HD/TNG group was safer than the HD/TMP group. However, the renal cortical blood flow of both groups showed a significant decrease at 60 min of hypotension. This method is necessary to increase the plasma vol. expander.

L23 ANSWER 61 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1991:598044 CAPLUS
DN 115:198044
TI Comparative study of hemodynamic and renal blood flow changes caused by hemodilution with Salinhes (HES) and 10% Dextran 40 (DEX 40)
AU Gotoh, Kinuko; Kuno, Masatoshi
CS Sch. Dent., Showa Univ., Japan
SO Nippon Shika Masui Gakkai Zasshi (1991), 19(2), 275-86
CODEN: NSMZDZ; ISSN: 0386-5835
DT Journal
LA Japanese
AB Salinhes (HES) is a plasma expander contg. 6% hydroxyethyl starch 40,000. The hemodynamic and renal blood flow changes under acute hemodilution were studied in 16 mongrel dogs anesthetized with halothane and paralyzed with pancuronium. Hemodilution was caused by removal of 20 mL/kg whole blood and **infusion** of HES or DEX 40 in 10 mL/kg of the whole blood removed. The total **infusion** of HES or DEX 40 was 20 mg/kg. The hematocrit level was 27-30% in the HES group, and 24-30% in the DEX 40 group. The hemodynamic and renal blood flow changes were measured before hemodilution and after hemodilution at 30 min and 1 h after the reentry of blood. In both groups, the circulation and renal blood flow were

maintained for approx. 60 min. In the HES group, the plasma renin level was significantly decreased after diln. Plasma BUN and creatinine levels were significantly increased after diln. in the DEX 40 group, but were within the normal range. Hydropexia was maintained better in the DEX 40 group than in the HES group. However, HES is more compatible with the endocrine systems and renal tissue than DEX 40.

L23 ANSWER 62 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1991:178073 CAPLUS
DN 114:178073
TI Hypertonic **saline** solution-**hetastarch** for fluid resuscitation in experimental septic shock
AU Armistead, Charles W., Jr.; Vincent, Jean Louis; Preiser, Jean Charles; De Backer, Daniel; Le Minh, Thuc
CS Dep. Intensive Care Med., Erasme Univ. Hosp., Brussels, B-1070, Belg.
SO Anesth. Analg. (N. Y.) (1989), 69(6), 714-20
CODEN: AACRAT; ISSN: 0003-2999
DT Journal
LA English
AB Hypertonic colloid solns. have been found efficacious in the resuscitation from hemorrhagic/traumatic shock. The present study investigated the hemodynamic, gasometric, and metabolic effects of hypertonic colloids in endotoxic shock in the dog. Thirty minutes after administration of 3 mg/kg normal body wt. of Escherichia coli endotoxin, dogs were randomly assigned to receive 10 mL/kg **hydroxyethylstarch** (HES) either in 0.9% **NaCl** (HES, 10 dogs) or in 7.5% **NaCl** (HT-HES, 10 dogs) in 30 min. Thereafter, 0.9% **NaCl** soln. was administered in vols. adequate to maintain pulmonary artery balloon-occluded pressure at baseline levels. Total fluid administered averaged 64 mL/kg (mean) in the HES group and 73 mL/kg in the HT-HES group. As these differences were not statistically significant, total sodium load was higher in the HT-HES group. The persistent vol. effect was assocd. with persistently lower hematocrit and protein levels in the HT-HES group. Initial fluid resuscitation with HT-HES resulted in arterial pressure, cardiac filling pressures, cardiac output, stroke vol., and rates of oxygen delivery and oxygen consumption that were greater than those with HES. Vascular resistances were similar. Anal. of left ventricular function curves also indicated an improvement in cardiac performance. However, these effects almost completely vanished during the remainder of the study. In the HT-HES group, serum sodium and osmolality levels increased to 167 mEq/L and 344 mOsm/kg H2O, resp. Therefore, in the initial fluid resuscitation from septic shock, hypertonic colloids can have beneficial effects that are attributed to an increase in plasma vol. and an improvement in cardiac function; but these effects are only transient.

L23 ANSWER 66 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1989:546486 CAPLUS
DN 111:146486
TI Oxygen uptake in bled dogs after resuscitation with hypertonic **saline** or **hydroxyethylstarch**
AU Reinhart, K.; Rudolph, T.; Bredle, D. L.; Cain, S. M.
CS Dep. Physiol. Biophys., Univ. Alabama, Birmingham, AL, 35294, USA
SO Am. J. Physiol. (1989), 257(1, Pt. 2), H238-H243
CODEN: AJPHAP; ISSN: 0002-9513
DT Journal
LA English
AB Hemodynamic and metabolic variables were measured for the whole body and isolated hind-limb of anesthetized dogs during resuscitation from hemorrhagic shock, using a small vol. of hypertonic **saline** or a larger vol. of **hydroxyethylstarch**. Twelve dogs were bled and maintained at a mean arterial pressure (MAP) of 40 mmHg for 30 min. Six dogs were then infused with 7.5% **NaCl** in 5 mL/kg **hydroxyethylstarch** (HTS group), and six received 6%

hydroxyethylstarch alone (HES group) in an amt. to approx. the max. MAP achieved with hypertonic **saline**. Hypertonic **saline replacement** was .apprx.16% of shed blood vol. compared with 66% for **hydroxyethylstarch**. With hypertonic **saline**, cardiac output returned to base line, but O2 delivery did not. **Hydroxyethylstarch** increased cardiac output above base line, and O2 delivery was near base line. O2 uptake with **hydroxyethylstarch** peaked at 40% above control at 10 min of resuscitation. Excess O2 uptake in recovery was higher than O2 deficit in hemorrhage with the HES group but not with the HTS group. In the isolated hindlimb, vascular resistance decreased rapidly on hypertonic **saline infusion** but reached similar levels at 10 min of resuscitation with both fluids. With progressive lowering of blood flow to the pump-perfused hind-limb, ability of limb muscle to ext. O2 was the same for the HTS and HES groups. With hemodilution by vol. **replacement** with acellular fluid after hemorrhage, a seemingly adequate cardiac output and arterial pressure may be underresuscitation if O2 delivery does not meet the increased O2 demand.

L23 ANSWER 70 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1988:87809 CAPLUS
DN 108:87809
TI Comparison of the effects of **infusion** with hydroxyethyl starch and low-molecular-weight dextran on cerebral blood flow and hemorheology in normal baboons
AU Tsuda, Yoshiyasu; Hartmann, Alexander; Weiand, Juergen; Solymosi, Laszlo
CS Neurol. Univ. Clin., Bonn, D-5300/1, Fed. Rep. Ger.
SO J. Neurol. Sci. (1987), 82(1-3), 171-80
CODEN: JNSCAG; ISSN: 0022-510X
DT Journal
LA English
AB Cerebral blood flow (CBF) and hemorheol. parameters, such as hematocrit, plasma viscosity, and erythrocyte aggregation, were measured before and up to 7 h after 60-min infusions with 10% **hydroxyethyl starch** (HES) or 0.9% **NaCl** soln. and 10% low-mol.-wt. dextran (LMWD) in normal baboons. **Infusion** of HES increased CBF by up to 48% from the resting level, and decreased hematocrit without an increase in plasma viscosity. **Infusion** of LMWD decreased hematocrit, with an increase in CBF of up to 9.6%, but increased plasma viscosity at the same time. The disaggregating effect on erythrocytes was rather more marked with LMWD than with HES but without significant difference between them. These data show different rheol. effects with infusions of HES and LMWD on the physiol. conditions of normal baboons.

L23 ANSWER 73 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1987:590603 CAPLUS
DN 107:190603
TI Resuscitation in hemorrhagic shock - pulmonary and renal effects: an adverse effect of stabilized plasma protein solution on renal function?
AU Ramsay, Graham; Ledingham, Iain M.
CS Dep. Surg., Western Infirm., Glasgow, UK
SO Circ. Shock (1987), 22(3), 261-8
CODEN: CRSHAG; ISSN: 0092-6213
DT Journal
LA English
AB In a model of severe canine hemorrhagic shock, greyhound dogs were allocated to resuscitation with 0.9% **saline**, polygeline, **hetastarch**, or stabilized plasma protein soln. (SPPS). Resuscitation was continued back to baseline pulmonary artery wedge pressure, and extravascular lung water (EVLW) and urine output were measured. EVLW following resuscitation was higher in the **saline** -treated group than in any of the 3 colloid-treated groups. Urine output following resuscitation was lower in the SPPS group than in any other

group. The results suggest that SPPS has an adverse effect on renal function in this model.

L23 ANSWER 94 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1977:101122 CAPLUS
DN 86:101122
TI Serial **infusion** effects of hydroxyethyl starch on ESR, blood typing and crossmatching and serum amylase levels
AU Janes, A. William; Mishler, John M.; Lowes, Bernard
CS Blood Bank, Med. Cent. West. Massachusetts, Springfield, Mass., USA
SO Vox Sang. (1977), 32(3), 131-4
CODEN: VOSAAD
DT Journal
LA English
AB Eight normal volunteers underwent a series of 3 plasmaphereses, prior to the **infusion** of 250, 500, and 750 mL **hydroxyethyl starch** (I) [**9005-27-0**], resp., in order to ascertain the effect of this agent on erythrocyte sedimentation rate (ESR), blood typing, and crossmatching, and serum .alpha.-amylase [9000-90-2] levels. The bolus injection of either 500 or 750 mL I produced a significant increase in the ESR, which was sustained over a 5 h period. Rouleaux formation was obsd. to be dose related and only obsd. following administration of >500 mL (575 mg/dL whole blood concn.). The rouleaux formation was, however, easily dispersed by the addn. of **saline**. Blood typing and crossmatching studies were normal, but caution must be taken in regard to false pos. when the estd. blood concn. of I >575 mg/dL. .alpha.-Amylase activity corrected for hemodilution was not significantly altered immediately following **infusion** of I. Recommendation of a new method of I administration during centrifugal leucapheresis is discussed.

L23 ANSWER 97 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1976:530507 CAPLUS
DN 85:130507
TI Increasing the intravenous compatibility of gamma globulins precipitated from blood or blood products
IN Schneider, Waldemar; Wolter, Dietrich
PA Ger.
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2500076	A1	19760708	DE 1975-2500076	19750102
	DE 2500076	B2	19790222		
	DE 2500076	C3	19821118		
	NL 7514627	A	19760706	NL 1975-14627	19751216
	NL 179824	B	19860616		
	NL 179824	C	19861117		
	SE 7514388	A	19760705	SE 1975-14388	19751218
	SE 437470	B	19850304		
	SE 437470	C	19850613		
	DK 7505843	A	19760703	DK 1975-5843	19751222
	DK 144679	B	19820510		
	DK 144679	C	19821011		
	AT 7509816	A	19771215	AT 1975-9816	19751223
	FR 2296429	A1	19760730	FR 1975-39814	19751226
	FR 2296429	B1	19781201		
	JP 55012001	B4	19800329	JP 1975-159742	19751227
	DD 121875	C	19760905	DD 1975-190614	19751229
	GB 1495159	A	19771214	GB 1975-53020	19751229

	BE 837211	A1	19760630	BE 1975-6045314	19751230
	ZA 7508050	A	19761229	ZA 1975-8050	19751230
	AU 7587921	A1	19770714	AU 1975-87921	19751230
	ES 443982	A1	19770716	ES 1975-443982	19751230
	CA 1058075	A1	19790710	CA 1975-242734	19751230
	IL 48766	A1	19791130	IL 1975-48766	19751230
	SU 576898	D	19771015	SU 1975-2306354	19751231
	PL 99599	P	19780731	PL 1976-186289	19760101
PRAI	DE 1975-2500076		19750102		

AB The intravenous compatibility of .gamma.-globulin pptd. from blood and/or blood products was increased by re-pptg. the .gamma.-globulin from an aq. soln. contg. **hydroxyethyl starch** [**9005-27-0**], gelatin, albumin, or other substance mutually protective with the globulin mol. For example, .gamma.-globulin was pptd. from a combined plasma sample by addn. of EtOH. The pptd. .gamma.-globulin was then taken up to a concn. of 6% in an aq. soln. of 10% **hydroxyethyl starch** at pH 6.7, and repptd. by addn. of polyethylene glycol. The ppt. was taken up in physiol. **saline** to a concn. of 5.2% albumin. .gamma.-Globulin treated in this way showed complete i.v. compatibility, had esp. high storage stability, and was not mol. modified or chem. changed. It was superior in these respects to .gamma.-globulin treated by prior methods, such as proteolytic modifn. or .beta.-propiolactone modifn.

L23 ANSWER 104 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1975:428492 CAPLUS
DN 83:28492
TI Novel method for the preparation of hydroxyethyl starch for the cryoprotection of human red blood cells
AU Greenwood, C. T.; Muir, D. D.; Whitcher, H. W.
CS Flour Milling Baking Res. Assoc., Chorleywood/Rickmansworth/Herts., Engl.
SO Staerke (1975), 27(4), 109-12
CODEN: STRKA6
DT Journal
LA English
AB Starch was treated with dil. HCl at 50.degree. for 2-4 hr to reduce its viscosity by formation of labile reducing end-groups, which was stabilized by rapid treatment with NaBH4 to give 70-80% alkali stable granule starch. Treatment of this stabilized starch with ethylene oxide and isopropenol contg. NaOH for 1 hr at room temp. gave **hydroxyethyl starch** which showed 97.2 red cell recovery and 89% **saline** stability after a complete freeze-thaw cycle.

L23 ANSWER 106 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1973:413570 CAPLUS
DN 79:13570
TI Hydroxyethyl starch as a plasma expander. **IV**. Subacute toxicity tests on high-molecular weight hydroxyethyl starch
AU Irikura, Tsutomu; Tamada, Terumi; Okada, Kodo; Ishida, Ryozo; Kudo, Yoshitaka
CS Kyorin Chem. Lab., Tokyo, Japan
SO Oyo Yakuri (1972), 6(7), 1557-65
CODEN: OYYAA2
DT Journal
LA Japanese
AB **Hydroxyethyl starch** [**9005-27-0**] (7g) dissolved in 100 ml Ringer's soln. (HES-R) was less toxic than the starch dissolved in 0.9% **NaCl** (HES-S). Rabbits i.v. infused with 90 ml HES-R/kg/day for 1 month survived, whereas all those infused with HES-S died. No significant change was obsd. when 10-30ml either HES-R or HES-S/kg/day was administered.

L23 ANSWER 111 OF 135 CAPLUS COPYRIGHT 2002 ACS

AN 1971:123531 CAPLUS
DN 74:123531
TI Hydroxyethyl starch as a plasma expander. II. Influences of molecular weight of hydroxyethyl starch on its physicochemical and biological properties
AU Tamada, Terumi; Okada, Kodo; Ishida, Ryozo; Kamishita, Katsuyuki; Irikura, Tsutomu
CS Kyorin Chem. Lab., Tokyo, Japan
SO Chem. Pharm. Bull. (1971), 19(2), 286-91
CODEN: CPBTAL
DT Journal
LA English
AB **Hydroxyethyl starch** (HES) was studied concerning the relation between its physicochem. properties and biol. activities to obtain the most desirable plasma expander. Since degree of substitution (DS) influences the biol. activity, the mol. wt. effect was examined with DS at 0.43-0.55. After **infusion** of 15 ml/kg of 6% HES soln. in **saline** into rabbits the persistence of polysaccharides in blood was detd. HES with higher mol. wt. was more persistent with DS const. The mol. wt. had little influence on the amt. of reducing sugars formed when resistance against pig pancreas .alpha.-amylase was tested in vitro. HES with DS 0.54 and mol. wt. about 216,000 was hydrolyzed with HCl and the physicochem. properties and the biol. activities of the hydrolyzates were examd. It appeared that hydrolysis of HES with HCl resulted in sepn. into 2 or more intermediate lower mol. wt. polysaccharides besides the reducing sugar liberation.

L23 ANSWER 116 OF 135 CAPLUS COPYRIGHT 2002 ACS
AN 1970:518106 CAPLUS
DN 73:118106
TI Hydroxyethyl starch and hemostasis
AU Gollub, S.
CS Saint Barnabas Hosp., Bronx, N. Y., USA
SO U.S. Clearinghouse Fed. Sci. Tech. Inform., AD (1970), No. 703929, 4 pp.
Avail.: CFSTI
From: U. S. Govt. Res. Develop. Rep. 1970, 70(11), 43
CODEN: XCCIAV
DT Report
LA English
AB **Hydroxyethyl starch** (.9% substituted made up as a 6% soln. in **saline**) caused hemorrhagic diathesis in 50 dogs. The same effect was obsd. with Dextran 70.

L23 ANSWER 127 OF 135 WPIDS COPYRIGHT 2002 DERWENT INFORMATION LTD
AN 1992-315849 [38] WPIDS
DNC C1992-140284
TI Storage of nucleated cells and blood matter - by lyophilisation in the presence of a mono saccharide and a polymer and subsequent reconstitution.
DC A96 B04 D16 D22
IN GOODRICH, R P; HACKETT, R W; WILLIAMS, C M
PA (CRYO-N) CRYOPHARM CORP
CYC 17
PI WO 9214360 A1 19920903 (199238)* EN 20p
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL SE
W: AU CA JP
AU 9214159 A 19920915 (199251)
JP 05506457 W 19930922 (199343) 5p
ADT WO 9214360 A1 WO 1992-US650 19920205; AU 9214159 A AU 1992-14159 19920205, WO 1992-US650 19920205; JP 05506457 W JP 1992-506605 19920205, WO 1992-US650 19920205
FDT AU 9214159 A Based on WO 9214360; JP 05506457 W Based on WO 9214360
PRAI US 1991-656553 19910215
AB WO 9214360 A UPAB: 19931113

Lyophilisation of a mixt. of nucleated cells and blood matter is claimed comprising (a) immersing the mixt. in a buffered soln. which includes (i) a monosaccharide (I) at a concn. of 7-37.5% and (ii) polymers (O) having a number average mol. wt. of 1-600K, where the total concn. of polymers is from 0.7% up to satn. in the soln., and (b) drying the cells by sublimation of the water. (I) may be e.g. xylose, glucose, ribose, mannose or fructose. (II) are pref. a mixt. of PVP and **hydroxyethyl starch** (HES). Also claimed are: (A) a process for reconstituting a lyophilised compsn. of nucleated cells and blood matter comprising mixing the compsn. with a PBS reconstitution soln. having a pH of 7-7.4 at 15-50 deg.C, the reconstitution soln. comprising a final concn. of 0.7 wt.% up to the satn. concn. of a polymer having a mol. wt. of 1-600K, to thereby reconstitute the nucleated cells to a useful state; the process may further comprise washing the compsn. with dextrose-**saline** buffer pH 7-7.4; (B) a process for reconstituting a lyophilised compsn. comprising nucleated cells and blood matter comprising contacting the compsn. at a temp greater than 17 deg.C with an aq. soln. of a polymer or a mixt. of polymers having a mol. wt. of 1-600K, present in a final concn. of 10-30 wt.%; the polymer may be e.g. PVP, **hydroxyethyl starch** or dextran; (C) a lyophilised compsn. comprising nucleated non-mammalian cells and host mammalian blood cells, the compsn. being capable of storage at ambient atmospheric temps. and capable of reconstitution to restore the nucleated non-mammalian cells and the mammalian blood cells to viable states.

USE/ADVANTAGE - The process provides for freeze-drying nucleated non-mammalian cells in the presence of red blood cells and platelets in a manner which permits the reconstitution of the nucleated cells as well as the red blood cells, platelets and white blood cells, with an intact cytoskeleton and with biologically active haemoglobin, i.e. useful red blood cells

Dwg.0/0

L21

AN 1998:161124 CAPLUS
DN 128:235143
TI Hypertonic arginine compositions and methods
IN Dewitt, Douglas; Kramer, George C.; Poli De Figueiredo, Luiz F.; Mathru, Mali; Prough, Donald S.
PA Board of Regents, University of Texas System, USA; Dewitt, Douglas; Kramer, George C.; Poli De Figueiredo, Luiz F.; Mathru, Mali; Prough, Donald S.
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9808500	A1	19980305	WO 1997-US16203	19970826
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9743448	A1	19980319	AU 1997-43448	19970826
PRAI	US 1996-25793P	P	19960826		
	WO 1997-US16203	W	19970826		

AB The present invention concerns hypertonic formulations that are useful to treat hemorrhage and trauma, and particularly trauma of the central nervous system, brain and spinal cord and circulatory shock. Also disclosed is a method of effectively treating or preventing the pulmonary or systemic hypertension that may occur with Hb infusions. Such hypertonic formulations include L-arginine in various hypertonic aq. formulations that may also include an oxygen carrier. A hypertonic (2400 mOsm) mixt. of **NaCl** (6.81 g/100 mL) and L-arginine (5 g/100 mL) alone or combined with various hyperoncotic colloids such as **dextran, hespan**, and Hbs, may be delivered at 6 mL/kg **infusion** to treat trauma and hemorrhage.
ST hypertonic arginine **infusion** hemorrhage trauma treatment
IT 9004-54-0, **Dextran**, biological studies 9005-27-0, Hetastarch
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(as hyperoncotic colloid; hypertonic compns. contg. arginine and crystalloids for treatment of cerebral ischemia)
IT 72-17-3, Sodium **lactate** 74-79-3, L-Arginine, biological studies 127-09-3, Sodium acetate 144-55-8, Sodium **bicarbonate**, biological studies 7647-14-5, Sodium chloride, biological studies
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hypertonic compns. contg. arginine and crystalloids for treatment of c

AN 1991:520064 CAPLUS
DN 115:120064
TI Galactose-based enteral and pareneral feeding solutions
IN Reutter, Werner; Roser, Martin
PA Fed. Rep. Ger.
SO Ger. Offen., 10 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3935906	A1	19910502	DE 1989-3935906	19891027
	DE 3935906	C2	19930617		

AB Solns. for enteral and parenteral feeding comprise monosaccharides, essential amino acids, **electrolytes** and proteins. Of the monosaccharides, .gtoreq.5% consist of D-galactose, L-glucose, D-mannose, D-glucosamine, N-acetylgalactosamine, N-acetylmannosamine, D-lactose and/or D-lactose, with D-galactose .gtoreq.50% of the above monosaccharide total. Since D-galactose restores the function of the metab. receptors and transport systems, the solns. are esp. useful for patients in coma or stress. An **infusion** soln. comprised D-galactose 25, D-mannose 25, arginine 5, phenylalanine 7, valine 5, leucine 7, isoleucine 6, lysine 6, methionine 5, **dextran** 25, **hydroxyethyl starch** 25, KCl 4, CaCL2 3, MgCl2 2 g/L and **NaCl** q.s.

IT **Electrolytes**
Albumins, biological studies
Globulins, biological studies
Monosaccharides
RL: BIOL (Biological study)
(feeding solns. contg., enteral and parenteral)

AN 1978-49978A [28] WPIDS
TI Prodn. of hydroxyethyl starch for use as plasma substitute - from waxy starch by reaction with ethylene oxide then controlled acid hydrolysis.
DC A11 A96 B04
PA (KYOR) KYORIN PHARM CO LTD; (OMOT-I) OMOTO H
CYC 1
PI DE 2700011 A 19780706 (197828)*
DE 2700011 C 19890803 (198931)
PRAI DE 1977-2700011 19770103
AB DE 2700011 A UPAB: 19930901
Prepn. of a **hydroxyethyl starch** (I) suitable for use as a plasma substitute comprises first **gelatinising** waxy cereal starch contg. >=99% amylopectin with hot water. It is then reacted with ethylene oxide in presence of alkali to a degree of substitution (D.S) of 0.50-0.55.

The resulting hydroxyethylated prod. is then hydrolysed under mild acid conditions, without changing the D.S. to give a material of intrinsic viscosity 0.09-0.14 dl/g. The prod. is then decolourised, purified by reverse osmosis, dried and powdered.

A plasma substitute consisting of a 6% soln. of (I) in **lactated** Ringer's soln. (or its equivalent in which Na acetate **replaces** Na **lactate**) is also claimed.

(I) has no effect on human erythrocytes and the 6% Ringer's solns. effectively restore blood pressure after heavy loss without side effects. They are free from toxic by-prods. (e.g. as ethylene glycol) and toxic solvents. In rats, a 6% soln. of (I) in 0.9% **saline** has intravenous LD50 142-143 ml/kg, corresp. to 8.5 g/kg of (I).

AN 1993:420153 CAPLUS
DN 119:20153
TI The effect of the type of colloid on the efficacy of hypertonic **saline** colloid mixtures in hemorrhagic shock: **Dextran** versus **hydroxyethyl starch**
AU Strecker, Ulrich; Dick, Wolfgang; Madjidi, Abbas; Ant, Marita
CS Dep. Anesth., Johannes Gutenberg-Univ., Mainz, D-W 6500, Germany
SO Resuscitation (1993), 25(1), 41-57
CODEN: RSUSBS; ISSN: 0300-9572
DT Journal
LA English
TI The effect of the type of colloid on the efficacy of hypertonic **saline** colloid mixtures in hemorrhagic shock: **Dextran** versus **hydroxyethyl starch**
AB Colloids increase and prolong the efficacy of hypertonic **saline** solns. in hemorrhagic shock. The present study compared the efficacy of **dextran** 60 and **hydroxyethyl starch** (HES) 200,000/0.5 at iso-oncotic concns. of 6.5 or 6% in a 7.5% NaCl soln. Thirty-two rabbits were bled to maintain a mean arterial pressure at 35 mmHg. Twenty-five percent of the shed blood vol. was **replaced** after 40 min by bolus **infusion** either with hypertonic **dextran** (HS-DEX) or with hypertonic **hydroxyethyl starch** (HS-HES). The animals were then obsd. for a 120-min period. In both groups immediate and complete restoration of cardiovascular function was achieved in up to 30 min and adequate restoration maintained for 60 min after **infusion**. During the subsequent 60 min signs of insufficient oxygen supply indicated the recurrence of near shock levels. Greater stability of hemodynamic efficacy was obsd. when **dextran** was added to hypertonic **saline**. The decrease in mean arterial pressure was lower in the **dextran** group ($P < 0.05$). The subsequent increase in avDO2 (bv. cava sup.) was approx. 50% lower with **dextran** (1 mL/dL compared to 1.8 mL/dL); ($P < 0.05$). These differences occurred primarily within the initial 15 min although the differences in mean arterial pressure were recorded only after 30-60 min. A 50% redn. in **lactate** levels (1.1 compared to 2.0 mmol; $P < 0.05$) in immediate response to reinfusion indicates an increased **lactate** absorption and thus improved perfusion of poorly perfused tissue in the **dextran** group. A further, important difference may be due to the different effects on the microcirculation. As evidenced by a decline in the end-expiratory arterial CO2 gradient, **dextran** effected a significant ($P < 0.01$) improvement in decreased pulmonary CO2 emission during shock. This indicates a greater rise of blood flow in poorly perfused, ventilated pulmonary areas. In summary, in this model **dextran** appeared to be the superior colloid compared to HES, particularly during the first hour after initiation of treatment, although direct proof of an improved long te

AN 1999:755989 CAPLUS
DN 132:44336
TI Hydroxyethylstarch: clinical uses
AU Esper, Raul Carrillo; Hernandez, Jose Manuel Ramirez; Alarcon, Carlos Eduardo Aleman; Hernandez, Jose Juan Gargallo; Martinez, Cuitlahuac Alvarado; Monroy, Fernando Nunez
CS Servicio de Terapia Intensiva, Hospital Central de Petroleos Mexicanos, Mex.
SO Rev. Fac. Med. U.N.A.M. (1998), 41(6), 227-230
CODEN: UMRMAJ; ISSN: 0026-1742
PB Universidad Nacional Autonoma de Mexico, Facultad de Medicina
DT Journal; General Review
LA Spanish
RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB A review with 39 refs. Circulatory shock is characterized by inadequate tissue perfusion which leads to cellular dysfunction, anaerobic metab., lactic acidosis, and tissue death. The patient survival depends on improving oxygen supply and other cardiorespiratory deficits through **replacement** of an adequate circulating blood/fluid vol. This can be achieved with crystalloid solns. (**saline, lactated** Ringer soln.), colloids (human serum albumin), or synthetic products (**dextran, gelatin,** hydroxylethyl starch). Colloid solns. have the most important use in managing crit. conditions, among them starch derivs., although they are not widely known by practicing physicians. The pharmacol. aspects of **hydroxyethyl starch** in blood substitute prepns. are discussed.

AN 1994:449804 CAPLUS
DN 121:49804
TI Hypertonic hydroxyethyl starch restores hepatic microvascular perfusion in hemorrhagic shock
AU Vollmar, Brigitte; Lang, Gunter; Menger, Michael D.; Messmer, Konrad
CS Inst. Surg. Res., Univ. Munich, Munich, D-8000, Germany
SO Am. J. Physiol. (1994), 266(5, Pt. 2), H1927-H1934
CODEN: AJPHAP; ISSN: 0002-9513
DT Journal
LA English
AB The influence of small-vol. resuscitation (hypertonic **saline**-10% **hydroxyethyl starch**, HS/HES) on liver microcirculation (intravital fluorescence microscopy) was studied in a non-heparinized hemorrhagic shock model [mean arterial pressure (MAP) 40 mmHg for 1 h] in rats. Resuscitation was performed with Ringer **lactate** (RL, 4-fold shed vol./ 20 min), 10% **hydroxyethyl starch** 200/0.6 (HES, shed vol./5 min), or 7.2% **NaCl**-10% **hydroxyethyl starch** 200/0.6 (HS/HES, 10% shed vol./2 min). One hour after resuscitation, MAP increased in all groups, but it did not return to preshock values. HES (16% non-perfused sinusoids) and HS/HES (14% non-perfused sinusoids), but not RL (24% non-perfused sinusoids), reduced shock-induced sinusoidal perfusion failure (28%) with restoration of leukocyte velocity in sinusoids (S) and post-sinusoidal venules (V). Shock-induced stasis/adherence of leukocytes was further increased after resuscitation with RL (S, 38%, V, 55%) and HES (S, 31%; V, 23%). In contrast, resuscitation with HS/HES prevented increased leukocyte stasis in sinusoids (-4%) as well as adherence to endothelial lining of post-sinusoidal venules (-5%). The authors conclude that **replacement** of only 10% of actual blood loss by small-vol. resuscitation (HS/HES) can restore hepatic microvascular perfusion and prevent

AN 1999:309077 CAPLUS
DN 131:139203
TI Extreme, progressive isovolemic hemodilution with 5% human albumin, pentalyte, or extend does not cause hepatic ischemia or histologic injury in rabbits
AU Nielsen, Vance G.; Baird, Manuel S.; Brix, Amy E.; Matalon, Sadis
CS Department of Anesthesiology, The University of Alabama at Birmingham, Birmingham, AL, 35249-6810, USA
SO Anesthesiology (1999), 90(5), 1428-1435
CODEN: ANESAV; ISSN: 0003-3022
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT
AB Background: Physicians and their patients are greatly concerned about perioperative blood administration. Although isovolemic hemodilution is utilized to decrease the incidence of **transfusion**, it is unclear at what degree of hemodilution hepatoenteric ischemia and injury occurs. The authors hypothesized that hepatic ischemia, systemic ischemia, and tissue injury would occur during hemodilution in rabbits, and that the severity of ischemia and injury may be dependent on the fluid administered. Methods: Rabbits anesthetized with isoflurane were assigned randomly to a sham-operated group (n = 8) or groups that underwent four isovolemic hemodilutions (25% of the blood vol. removed at hourly intervals), with blood **replaced** with one of three solns.: balanced **electrolyte** solns. contg. 6% **pentastarch** (n = 8), 6% **hetastarch** (n = 9), or 5% human albumin in normal **saline** (n = 8). Arterial ketone body ratio and plasma **lactate**, resp., served as measures of hepatic and systemic ischemia. Gastric, duodenal, and hepatic histol. injury was assessed post mortem. Results: Hemodilution from a baseline hematocrit of about 33% to about 8% (third hemodilution) with all three colloids did not result in a significant increase in plasma **lactate** concn. or decrease in arterial ketone body ratio. At a hematocrit of about 5% (fourth hemodilution), the **hetastarch** group had a significantly ($P < 0.05$) greater plasma **lactate** concn. than the sham-operated and 5% human albumin groups. There were no significant differences in arterial ketone body ratio or histol. injury between the groups. Conclusions: Isovolemic hemodilution (approx. 5% hematocrit) with albumin, **pentastarch**, or **hetastarch** solns. does not result in significant hepatic ischemia or injury assessed by histol.

AN 1999:319698 CAPLUS
DN 131:139210
TI Hextend, a physiologically balanced plasma expander for large volume use in major surgery: a randomized phase III clinical trial
AU Gan, T. J.; Bennett-Guerrero, E.; Phillips-Bute, B.; Wakeling, H.; Moskowitz, D. M.; Olufolabi, Y.; Konstadt, S. N.; Bradford, C.; Glass, P. S. A.; Machin, S. J.; Mythen, M. G.
CS Department of Anesthesiology, Duke University Medical Center, Durham, NC, 27710, USA
SO Anesth. Analg. (Baltimore) (1999), 88(5), 992-998
CODEN: AACRAT; ISSN: 0003-2999
PB Lippincott Williams & Wilkins
DT Journal
LA English
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Hextend (BioTime, Inc., Berkeley, CA) is a new plasma vol. expander contg. 6% **hetastarch**, balanced **electrolytes**, a **lactate** buffer, and physiol. levels of glucose. In preclin. studies, its use in shock models was assocd. with an improvement in outcome compared with alternatives, such as albumin or 6% **hetastarch** in **saline**. In a prospective, randomized, two-center study (n = 120), we compared the efficacy and safety of Hextend vs. 6% **hetastarch** in **saline** (HES) for the treatment of hypovolemia during major surgery. Patients at one center had a blood sample drawn at the beginning and the end of surgery for thromboelasto-graphic (TEG) anal. Hextend was as effective as HES for the treatment of hypovolemia. Patients received an av. of 1596 mL of Hextend: 42% received >20 mL/kg up to a total of 5000 mL. No patient received albumin. Hextend-treated patients required less intraoperative calcium (4 vs. 220 mg; $P < 0.05$). In a subset anal. of patients receiving red blood cell transfusions (n = 56; 47%), Hextend-treated patients had a lower mean estd. blood loss (956 mL less; $P = 0.02$) and were less likely to receive calcium supplementation ($P = 0.04$). Patients receiving HES demonstrated significant prolongation of time to onset of clot formation (based on TEG) not seen in the Hextend patients ($P < 0.05$). No Hextend patient experienced a related serious adverse event, and there was no difference in the total no. of adverse events between the two groups. The results of this study demonstrate that Hextend, with its novel buffered, balanced **electrolyte** formulation, is as effective as 6% **hetastarch** in **saline** for the treatment of hypovolemia and may be a safe alternative even when used in vols. up to 5 L.

AN 2002-088755 [12] WPIDS
CR 1995-036128 [05]; 1996-321575 [32]; 1998-076406 [07]; 1999-609622 [52]; 2000-504958 [38]; 2001-327117 [29]
DNN N2002-065354 DNC C2002-027212
TI Artificial plasma like aqueous solution useful as a blood substitute comprises **hydroxyethyl starch**, **sodium**, **chloride**, potassium and calcium ions.
DC A11 A96 B04 D22 P34
IN SEGALL, J M; SEGALL, P E; STERNBERG, H; WAITZ, H D
PA (BIOT-N) BIOTIME INC
CYC 1
PI US 6300322 B1 20011009 (200212)* 12p
ADT US 6300322 B1 CIP of US 1993-71533 19930604, CIP of US 1993-133527 19931007, CIP of US 1994-253384 19940603, Cont of US 1994-364699 19941228, Cont of US 1997-780974 19970109, CIP of US 1997-886921 19970702, CIP of WO 1997-US19964 19971031, CIP of US 2000-530006 20000420, US 2000-565784 20000505
FDT US 6300322 B1 CIP of US 5407428, CIP of US 5702880, CIP of US 5945272
PRAI US 2000-565784 20000505; US 1993-71533 19930604; US 1993-133527 19931007; US 1994-253384 19940603; US 1994-364699 19941228; US 1997-780974 19970109; US 1997-886921 19970702; WO 1997-US19964 19971031; US 2000-530006 20000420
TI Artificial plasma like aqueous solution useful as a blood substitute comprises **hydroxyethyl starch**, **sodium**, **chloride**, potassium and calcium ions.
AB US 6300322 B UPAB: 20020221
NOVELTY - Artificial plasma-like aqueous solution (I) comprises hydroxyethyl starch, sodium ions (70-160, preferably 110 mM), chloride ions (70-160 mM), potassium ions (0-5 mM) and calcium ions (at least 0.5 mM). The starch has an average molecular weight of about at least 150,000 Daltons.

USE - In application in which at least a portion of a host's blood volume is **replaced** with a blood substitute solution e.g. surgical procedures including procedures involving a reduction in the temperature of a host from the host's normal body temperature; as a blood substitute; to maintain physiological integrity following death; as a cold p

$110\,mM = 58.44 \times .11$
$= \frac{6.4\,g}{1000}$

NaCl too low

AN 1997:119200 CAPLUS
DN 126:135642
TI Use of hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device
IN Dizerega, Gere Stodder
PA University of Southern California, USA
SO PCT Int. Appl., 121PP
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9640168	A2	19961219	WO 1996-US8098	19960531
	WO 9640168	A3	19970123		
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5807833	A	19980915	US 1995-482235	19950607
	CA 2223573	AA	19961219	CA 1996-2223573	19960531
	AU 9659569	A1	19961230	AU 1996-59569	19960531
	AU 722836	B2	20000810		
	EP 831856	A2	19980401	EP 1996-916821	19960531
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 11506741	T2	19990615	JP 1996-500875	19960531
PRAI	US 1995-482235	A	19950607		
	WO 1996-US8098	W	19960531		

IT Reagents
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Ringer's **lactate**; hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device)
IT Physiological **saline** solutions
(phosphate-buffered; **hydroxyethyl starch** to prevent post surgical adhesion and as an intracavity carrier device)
IT 56-14-4, Succinate, biological studies 71-50-1, Acetate, biological studies 71-52-3, **Bicarbonate** 77-86-1 126-44-3, Citrate, biological studies 3812-32-6, Carbonate, biological studies 11129-12-7, Borate 14265-44-2, Phosphate, biological studies
RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(buffer; hydroxyethyl starch to prevent post surgical adhesion and as an intracavity carrier device)

AN 1999:633167 CAPLUS
DN 132:178990
TI Effect of hypertonic **saline-hydroxyethyl starch** on gastric mucosa damage of rabbits during hemorrhagic shock
AU Liu, Dingjing; Wang, Junyi; Zhang, Zhenqian; Cai, Chun; Zhang, Songtao
CS Department of Emergency Medicine, Xijing Hospital, Fourth Military Medical University, Xi'an, 710033, Peop. Rep. China
SO Disi Junyi Daxue Xuebao (1999), 20(8), 710-712
CODEN: DJDXEG; ISSN: 1000-2790
PB Disi Junyi Daxue Xuebao Bianjibu
DT Journal
LA Chinese
AB Whether hypertonic **saline-hydroxyethyl starch** (HSH) exerts any protective effect on the gastric mucosa damage of rabbits during resuscitation from hemorrhagic shock was studied. Twenty-four white rabbits were randomly divided into 4 groups : normal control (n = 6); HSH resuscitation group (n = 6); hypertonic **saline** (HS) resuscitation group (n = 6) and normal **saline** (NS) resuscitation group (n = 6). A hemorrhagic shock animal model was prepd. The levels of ATP, energy charge (EC), nucleic acid metab., superoxide dismutase (SOD) and malondialdehyde (MDA) in gastric mucosa tissue were detd. and the area d. of gastric mucosa lesions (ADGML) were measured. ATP, EC and SOD levels of gastric mucosa tissue in HSH group were significantly higher than those in HS and NS groups 90 min after the resuscitation. Whiles the MDA and ADGML levels of gastric mucosa tissue were lower. The nucleic acid metab. levels of gastric mucosa tissue in HSH group, similar to those in normal control group, were higher than those in HS and NS groups. HSH can mitigate gastric mucosa damage during resuscitation from hemorrhagic shock.

AN 1987:590603 CAPLUS
DN 107:190603
TI Resuscitation in hemorrhagic shock - pulmonary and renal effects: an adverse effect of stabilized plasma protein solution on renal function?
AU Ramsay, Graham; Ledingham, Iain M.
CS Dep. Surg., Western Infirm., Glasgow, UK
SO Circ. Shock (1987), 22(3), 261-8
CODEN: CRSHAG; ISSN: 0092-6213
DT Journal
LA English
AB In a model of severe canine hemorrhagic shock, greyhound dogs were allocated to resuscitation with 0.9% **saline**, polygeline, **hetastarch**, or stabilized plasma protein soln. (SPPS). Resuscitation was continued back to baseline pulmonary artery wedge pressure, and extravascular lung water (EVLW) and urine output were measured. EVLW following resuscitation was higher in the **saline** -treated group than in any of the 3 colloid-treated groups. Urine output following resuscitation was lower in the SPPS group than in any other group. The results suggest that SPPS has an adverse effect on renal functio

AN 1988:87809 CAPLUS
DN 108:87809
TI Comparison of the effects of **infusion** with hydroxyethyl starch and low-molecular-weight dextran on cerebral blood flow and hemorheology in normal baboons
AU Tsuda, Yoshiyasu; Hartmann, Alexander; Weiand, Juergen; Solymosi, Laszlo
CS Neurol. Univ. Clin., Bonn, D-5300/1, Fed. Rep. Ger.
SO J. Neurol. Sci. (1987), 82(1-3), 171-80
CODEN: JNSCAG; ISSN: 0022-510X
DT Journal
LA English
AB Cerebral blood flow (CBF) and hemorheol. parameters, such as hematocrit, plasma viscosity, and erythrocyte aggregation, were measured before and up to 7 h after 60-min infusions with 10% **hydroxyethyl starch** (HES) or 0.9% **NaCl** soln. and 10% low-mol.-wt. dextran (LMWD) in normal baboons. **Infusion** of HES increased CBF by up to 48% from the resting level, and decreased hematocrit without an increase in plasma viscosity. **Infusion** of LMWD decreased hematocrit, with an increase in CBF of up to 9.6%, but increased plasma viscosity at the same time. The disaggregating effect on erythrocytes was rather more marked with LMWD than with HES but without significant difference between them. These data show different rheol. effects with infusions of HES and LMWD on the physiol. conditions of normal baboons.

AN 1991:178073 CAPLUS
DN 114:178073
TI Hypertonic **saline** solution-**hetastarch** for fluid resuscitation in experimental septic shock
AU Armistead, Charles W., Jr.; Vincent, Jean Louis; Preiser, Jean Charles; De Backer, Daniel; Le Minh, Thuc
CS Dep. Intensive Care Med., Erasme Univ. Hosp., Brussels, B-1070, Belg.
SO Anesth. Analg. (N. Y.) (1989), 69(6), 714-20
CODEN: AACRAT; ISSN: 0003-2999
DT Journal
LA English
AB Hypertonic colloid solns. have been found efficacious in the resuscitation from hemorrhagic/traumatic shock. The present study investigated the hemodynamic, gasometric, and metabolic effects of hypertonic colloids in endotoxic shock in the dog. Thirty minutes after administration of 3 mg/kg normal body wt. of Escherichia coli endotoxin, dogs were randomly assigned to receive 10 mL/kg **hydroxyethylstarch** (HES) either in 0.9% **NaCl** (HES, 10 dogs) or in 7.5% **NaCl** (HT-HES, 10 dogs) in 30 min. Thereafter, 0.9% **NaCl** soln. was administered in vols. adequate to maintain pulmonary artery balloon-occluded pressure at baseline levels. Total fluid administered averaged 64 mL/kg (mean) in the HES group and 73 mL/kg in the HT-HES group. As these differences were not statistically significant, total sodium load was higher in the HT-HES group. The persistent vol. effect was assocd. with persistently lower hematocrit and protein levels in the HT-HES group. Initial fluid resuscitation with HT-HES resulted in arterial pressure, cardiac filling pressures, cardiac output, stroke vol., and rates of oxygen delivery and oxygen consumption that were greater than those with HES. Vascular resistances were similar. Anal. of left ventricular function curves also indicated an improvement in cardiac performance. However, these effects almost completely vanished during the remainder of the study. In the HT-HES group, serum sodium and osmolality levels increased to 167 mEq/L and 344 mOsm/kg H2O, resp. Therefore, in the initial fluid resuscitation from septic shock, hypertonic colloids can have beneficial effects that are attributed to an increase in plasma vol. and an improvement in cardiac function; but these effects are only transient.

AN 1997:325924 CAPLUS
DN 127:543
TI Oncotic, hemodilutional, and hemostatic effects of isotonic **saline** and **hydroxyethyl starch** solutions in clinically normal ponies
AU Jones, Peyton A.; Tomasic, Michael; Gentry, Patricia A.
CS Department of Clinical Studies, School of Veterinary Medicine, New Bolton Center, University of Pennsylvania, Kennet Square, PA, 19348-1692, USA
SO Am. J. Vet. Res. (1997), 58(5), 541-548
CODEN: AJVRAH; ISSN: 0002-9645
PB American Veterinary Medical Association
DT Journal
LA English
AB The oncotic, hemodilutional, and hemostatic effects of i.v. infusions of a large vol. of isotonic **saline** soln. and 2 doses of 6% **hydroxyethyl starch** (HES) in clin. normal ponies were evaluated in 12 adult ponies. Ponies were assigned to 3 treatment groups and received the following i.v. infusions: 80 mL of 0.9% **sodium chloride**/kg; 10 mL of 6% HES (in 0.9% **sodium chloride**)/kg; or 20 mL of 6% HES (in 0.9% **sodium chloride**)/kg. Blood samples were collected for detn. of colloid oncotic pressure (COP), PCV, plasma total protein concn., platelet count, von Willebrand factor antigen (vWf:Ag) activity, fibrinogen concn., prothrombin time, activated partial thromboplastin time (APTT), and factor VIII coagulant (FVIII:C) activity. A rocket immunoelectrophoretic procedure was used for detn. of vWf:Ag activity. A modification of the APTT assay was used for detn. of FVIII:C activity. Cutaneous bleeding time was detd., using a template method. Mean COP was persistently increased over baseline values in the face of hemodilution in HES-treated ponies. Prothrombin time, APTT, and fibrinogen concns. decreased after infusions and vWf:Ag and FVIII:C activities were decreased in dose-dependent manner in HES-treated ponies. Though cutaneous bleeding time was not significantly affected in ponies of any group, a trend toward prolongation of bleeding time was evident in ponies receiving 20 mL of HES/kg. This trend appeared to be assocd. with marked decrement in vWf:Ag activity at this dosage. **Infusion** of HES in clin. normal ponies increases COP, and exerts dose-dependent hemodilutional effects and dose-dependent effects on specific hemostatic variables. Thus, HES may be useful for resuscitative fluid treatment of horses.

AN 1998:547579 CAPLUS
DN 129:310746
TI Effects of hypertonic **saline hydroxyethyl starch** solution and mannitol in patients with increased intracranial pressure after stroke
AU Schwarz, Stefan; Schwab, Stefan; Bertram, Markus; Aschoff, Alfred; Hacke, Werner
CS University of Heidelberg, Heidelberg, 69120, Germany
SO Stroke (1998), 29(8), 1550-1555
CODEN: SJCCA7; ISSN: 0039-2499
PB Williams & Wilkins
DT Journal
LA English
AB The purpose of this study was to prospectively evaluate a protocol with hypertonic **saline hydroxyethyl starch** (HS-HES) and mannitol in stroke patients with increased intracranial pressure (ICP). We studied 30 episodes of ICP crisis in 9 patients. ICP crisis was defined as (1) a rise of ICP of more than 25 mm Hg (n=22), or (2) pupillary abnormality (n=3), or (3) a combination of both (n=5). Baseline treatment was performed according to a standardized protocol. For initial treatment, the patients were randomly assigned to either **infusion** of 100 mL HS-HES or 40 g mannitol over 15 min. For repeated treatments the 2 substances were alternated. ICP, blood pressure, and cerebral perfusion pressure (CPP) were monitored over 4 h. Blood gases, hematocrit, blood osmolarity, and sodium were measured before and 15 and 60 min after the start of **infusion**. Treatment was regarded as effective if ICP decreased >10% below baseline value or if the pupillary reaction had normalized. Treatment was effective in all 16 HS-HES-treated and in 10 of 14 mannitol-treated episodes. ICP decreased from baseline values in both groups, $P<0.01$. The max. ICP decrease was 11.4 mm Hg (after 25 min) in the HS-HES-treated group and 6.4 mm Hg (after 45 min) in the mannitol-treated group. There was no const. effect on CPP in the HS-HES-treated group, whereas CPP rose significantly in the mannitol-treated group. Blood osmolarity rose by 6.2 mmol/L in the mannitol-treated group and by 10.5 mmol/L in the HS-HES-treated group; sodium fell by 3.2 mmol/L in the mannitol and rose by 4.1 mmol/L in the HS-HES-treated group. **Infusion** of 40 g mannitol and 100 mL HS-HES decreases increased ICP after stroke. The max. effect occurs after the end of **infusion** and is visible over 4 h. HS-HES seems to lower ICP more effectively but does not increase CPP as much as does mannitol.

AN 1999:642806 CAPLUS
DN 131:237910
TI Comparison of pentastarch and Hartmann's solution for volume preloading in spinal anesthesia for elective Cesarean section
AU French, G. W. G.; White, J. B.; Howell, S. J.; Popat, M.
CS Department of Anaesthetics, Northampton District General Hospital, Northampton, NN1 5BD, UK
SO Br. J. Anaesth. (1999), 83(3), 475-477
CODEN: BJANAD; ISSN: 0007-0912
PB Oxford University Press
DT Journal
LA English
AB We studied 160 patients undergoing elective Cesarean section under spinal anesthesia who received a preloading vol. of 15 mL kg-1 of 10% **pentastarch** in 0.9% **saline**, or Hartmann's soln., in a prospective, randomized, double-blind study. We compared the incidence of spinal-induced hypotension in each group. Hypotension was defined as a decrease in systolic arterial pressure to less than 70% of baseline values or .ltoreq.90 mm Hg, whichever was the greater. The groups were comparable in phys. characteristics and there was no serious morbidity. Fetal outcome was similar in both groups. Significantly more patients in the Hartmann's group (n=38, 47.5%) developed hypotension than in the **pentastarch** group (n=10, 12.5%) (P<0.0001). Linear regression anal. showed that the only significant variable was type of fluid used. Blood glucose concns. were not related to the presence of hypotension. We conclude that starches may be suitable for preloading in Cesarean section under spinal anesthesia and provide an alternative to the aggressive use of vaso

AN 1975:508576 CAPLUS
DN 83:108576
TI Plasma histamine levels in man following **infusion** of hydroxyethyl starch. Allergic or anaphylactoid reactions following administration of a new plasma substitute
AU Lorenz, W.; Doenicke, A.; Freund, M.; Schmal, A.; Dormann, P.; Praetorius, B.; Schuerk-Bulich, M.
CS Abt. Exp. Chir. Pathol. Biochem., Univ. Marburg, Marburg, Ger.
SO Anaesthesist (1975), 24(5), 228-30
CODEN: ANATAE
DT Journal
LA German
AB Rapid **infusion** of the plasma substitute **hydroxyethyl starch** (**Plasmasteril**) [**9005-27-0**] (about 6 ml/kg body wt. of a soln. contg. 6 g/100 ml isotonic **NaCl**) into volunteers caused no histamine (I) [51-45-6] release into the plasma and no clin. symptoms of allergic or anaphylactoid reaction.

Date no good
Background

AN 2001:335847 CAPLUS
DN 136:90812
TI Impact of carrier solutions on pharmacokinetics of intraperitoneal chemotherapy
AU Pestieau, Sophie R.; Schnake, Klaus J.; Stuart, O. Anthony; Sugarbaker, Paul H.
CS Washington Hospital Center, The Washington Cancer Institute, Washington, DC, 20010, USA
SO Cancer Chemotherapy and Pharmacology (2001), 47(3), 269-276
CODEN: CCPHDZ; ISSN: 0344-5704
PB Springer-Verlag
DT Journal
LA English
AB In the treatment of gastrointestinal malignancies with dissemination to peritoneal surfaces the principal advantage of i.p. chemotherapy over i.v. chemotherapy is the high drug concn. achieved locally with low systemic toxicity. This advantage can be optimized by maintaining a large area of contact between the chemotherapy soln. and the surfaces within the abdomen and pelvis over a prolonged time period. Using a rat model we compared the pharmacokinetics of two drugs infused i.p., 5-fluorouracil and gemcitabine, in five different carrier solns. A total of 120 Sprague Dawley rats were randomized into groups according to the carrier soln. and the drug administered. Rats were given a single dose of i.p. 5-fluorouracil (20 mg/kg) or gemcitabine (12.5 mg/kg) in 0.1 mL/g body wt. of each carrier soln. The carrier solns. used varied in their tonicity (0.3%, 0.9% or 3% **sodium chloride**), or were isotonic and varied in mol. wt. (0.9% **sodium chloride**, 4% icodextrin and 6% **hetastarch**). With the hypotonic, isotonic and hypertonic **sodium chloride** solns., only 5-fluorouracil was used. Each group was further randomized according to the i.p. dwell period (1, 3 or 6 h). At the end of the procedure the rats were killed, the peritoneal fluid was withdrawn completely and the blood was sampled using a standardized protocol. The vol. of the peritoneal fluid was recorded, and the drug concns. in the peritoneal fluid and plasma were detd. by high-performance liq. chromatog. Measurements of peritoneal fluid vol. showed a more rapid clearance of hypotonic and isotonic **sodium chloride** solns. from the peritoneal cavity as compared to hypertonic **sodium chloride** and high mol. wt. solns. When comparing the remaining i.p. vols. at 6 h, the differences were statistically significant for both 5-fluorouracil and gemcitabine when **hetastarch** ($P < 0.0001$ and $P = 0.0004$) and icodextrin ($P = 0.002$ and 0.008) were compared with isotonic **sodium chloride** soln. Similarly, there was a significant difference in the vols. recorded at 6 h when hypotonic ($P < 0.0001$) and isotonic **sodium chloride** solns. ($P = 0.0002$) were compared with hypertonic **sodium chloride** soln. The concns. of chemotherapy in the different carrier solns. varied little. The total amt. of drug in the peritoneal cavity decreased with all solns. and more quickly with 5-fluorouracil than with gemcitabine. There was a significant difference in the total i.p. 5-fluorouracil between hypotonic and isotonic **sodium chloride** solns. at 1 h ($P = 0.0003$) and 3 h ($P = 0.0043$), as well as between the isotonic and hypertonic **sodium chloride** solns. at 1 h ($P = 0.03$) and 3 h ($P < 0.0001$). Similarly, there was a significant difference in the total peritoneal gemcitabine at 6 h between icodextrin and isotonic **sodium chloride** soln. ($P = 0.01$) and between **hetastarch** and isotonic **sodium chloride** soln. ($P = 0.05$). There were no significant differences in plasma 5-fluorouracil and plasma gemcitabine concns. obtained with the five solns. These findings show that the clearance of 5-fluorouracil and gemcitabine from the peritoneal cavity can be significantly modified by varying the tonicity or the mol. wt. of the carrier soln. Peritoneal

fluid clearance was slower with hypertonic **sodium chloride** and high mol. wt. solns. and this resulted in a reduced clearance of chemotherapy. By using a high mol. wt. carrier soln. the exposure of i.p. cancer cells to gemcitabine was prolonged and drug availability at the peritoneal surface was increased. Similarly, by using a hypertonic carrier soln. the exposure to 5-fluorouracil was prolonged and dru

AN 2002:41206 CAPLUS
TI Effects of resuscitation with hydroxyethyl starch (HES) on pulmonary hemodynamics and lung lymph balance in hemorrhagic sheep; comparative study of low and high molecular HES
AU Kaneki, Toshimichi; Koizumi, Tomonobu; Yamamoto, Hiroshi; Fujimoto, Keisaku; Kubo, Keishi; Shibamoto, Toshishige
CS First Department of Internal Medicine, Shinshu University School of Medicine, Shinshu, 390-8621, Japan
SO Resuscitation (2002), 52(1), 101-108
CODEN: RSUSBS; ISSN: 0300-9572
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
AB Synthetic starch soln., such as **hydroxyethyl starch** (HES), has been used clin. to restore cardiovascular vol. in patients with hemorrhagic shock. Several HES solns. are available clin., but each HES has a broad range of mol. mass fractions. We performed comparative studies of extremely low and high mol. HES to evaluate the effects of these HES solns. on lung lymph filtration during resuscitation. We prepd. awake sheep with vascular monitoring and lung lymph fistulas. After baseline measurements, animals were bled from an arterial line to maintain shock. After 2 h of hemorrhagic period, the following three solns. were infused over 1 h, resp. Expt. (Exp) 1 (n=6); low mol. HES; (mol. wt. (MW) 70000, substitution fractions 0.5-0.55, Exp 2 (n=6); high mol. HES; (MW450000, substitution fractions 0.65). Exp 3 (n=6); normal **saline** (NS). The quantity of soln. was detd. as the same vol. of blood lost to induce hemorrhagic situation in each animal (Exp 1; 940.+-.36 mL, Exp 2; 910.+-.50 mL, Exp 3; 920.+-.42 mL). Both low and high mol. HES could restore the systemic artery pressure and cardiac output, and significantly increased pulmonary microvascular pressure equally, which were significantly higher than those in normal **saline**. However, actual oncotic pressure gradient (plasma-lymph) rose transiently during low mol. HES **infusion**, while high mol. HES widened the oncotic pressure gradient even after the cessation of the **infusion**. Lung lymph flow during and after resuscitation with low mol. HES and NS rose significantly from the pre-shock baseline. There was no significant difference in increased lung lymph flow between low mol. HES and NS. However, lung lymph flow after high mol. HES was significantly less than that after low mol. HES. These data suggest that low mol. HES is as useful a plasma substitute as high mol. HES, but has a possibility to increase lung lymph filtration during the early phase of resusci

Date no good

Good Background

AN 1999:803386 CAPLUS
DN 132:15613
TI Preparation of noncrystalline mannitol injection
IN Sun, Xuguang; Song, Benhai
PA Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1156587	A	19970813	CN 1996-120548	19961213 <--

AB The title injection is composed of mannitol 100-200 g, NaCl 10-100 g, and injection water to 1,000 mL, preferably mannitol 150 g, NaCl 30 g, and injection water to 1,000 mL. The injection is prepd. by dissolving mannitol and NaCl in injection water, decoloring with 2-10 g active C by boiling for 8-12 min, filtering, dilg. to 1,000 mL, filtering, filling, and sterilizing at 115-120.degree. and 0.07-0.10 MPa for 40 min.

abstracts of X-ref. (only one X-ref)
I have here two abst. for same docum.

AN 2001-344336 [37] WPIDS
DNC C2001-106769
TI Non crystal mannitol injection and its preparation.
DC B05
IN SONG, B; SUN, X
PA (SUNX-I) SUN X
CYC 1
PI CN 1156587 A 19970813 (200137)* <--
ADT CN 1156587 A CN 1996-120548 19961213
PRAI CN 1996-120548 19961213
AB CN 1156587 A UPAB: 20010704
NOVELTY - A non crystal mannitol injection contains mannitol, sodium chloride and water for injection and features no crystallization at ordinary temperature, no change in curative effect and convenience in clinic application without time delay to rescue emergency patient.
Dwg.0/0

RN 9005-27-0 REGISTRY
CN Starch, 2-hydroxyethyl ether (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN **2-Hydroxyethyl starch**
CN **2-Hydroxyethyl starch ether**
CN Amaizo 742D
CN Amaizo 745D
CN Bohramyl
CN Bohramyl CR
CN Clineo 712D
CN Coatmaster K
CN Coatmaster K 500
CN Coatmaster K 520
CN Coatmaster K 530
CN Coatmaster K 540
CN Coatmaster K 550
CN Coatmaster K 560
CN Coatmaster K 570
CN Coatmaster K 580
CN Coatmaster K 592
CN Coatmaster K 59F
CN Coatmaster K 92F
CN Elohes
CN Essex 1360
CN Essex Gum 1360
CN Ethylex 2020
CN Ethylex 2025
CN Ethylex 2030
CN Ethylex 2095
CN Ethylex 3095
CN Ethylex Gum 2020
CN Ethylex Gum 2030
CN HAES-steril
CN Hespan
CN Hespander
CN HET
CN Hetastarch
CN **Hydroxyethyl starch**
CN Hydroxyethylated starch
CN **O-(2-Hydroxyethyl)starch**
CN **O-(Hydroxyethyl)starch**
CN Oxethamyl
CN Pen-Cote
CN Penford 200
CN Penford 230
CN Penford 260
CN Penford 270
CN Penford 280
CN Penford 290
CN Penford 295
CN Penford 300
CN Penford 460
CN Penford Gum 200
ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY
AR 87140-13-4
DR 9057-07-2, 62253-20-7, 87140-13-4, 39363-84-3, 39363-85-4, 204144-00-3
MF C2 H6 O2 . x Unspecified
CI COM
PCT Manual registration, Polyother, Polyother only
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CBNB, CHEMCATS, CHEMLIST, CIN, CSCHEM, DDFU,

DIOGENES, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, PHAR, PHARMASEARCH, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, USAN, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

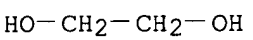
CM 1

CRN 9005-25-8
CMF Unspecified
CCI MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 107-21-1
CMF C2 H6 O2



1322 REFERENCES IN FILE CA (1967 TO DATE)
127 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
1326 REFERENCES IN FILE CAPLUS (1967 TO DATE)